

TECHNOLOGY DEPARTMENT

APRIL, 1948

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DETROIT

# Flow

THE MAGAZINE OF MODERN MATERIAL HANDLING AND PACKAGING METHODS

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**1948 AMA  
PACKAGING  
EXPOSITION**

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CIRCULATION THIS ISSUE 26 031



*"There's no substitute for the ZIP!"*

THAT'S why I like to install these Zip-Lifts! They don't have to be replaced every few years. They do everything *right*—and don't give us trouble. No wonder, experienced users say—*"there's no substitute for a Zip!"*

The Zip-Lift is the small wire rope hoist with full magnetic push-button control. It's the standout in quality — with *added values* you'd expect only in the most expensive hoisting equipment. Benefit by proved experience — tens of thousands of P&H Zip-Lifts are now in service. Why not add one to your handling now — to boost production and cut costs? They're available for prompt delivery.

Get the facts on the P&H Zip-Lift today. Ask for Bulletin H20-4 — complete with applications, pictures, specifications, etc.



*These are added values!*



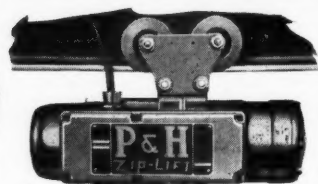
**SAFER** — Full magnetic control with control current reduced to 110 volts at the push-button. Plugging crane type limit switch and large double brakes provide maximum safety. No open wiring.

**LIFETIME CONSTRUCTION** — Precision built — shaved gears running in oil — grease-sealed anti-friction bearings—fully enclosed, moisture-proof, dust-proof, acid-proof.

**SMOOTHER OPERATION** — Motor specifically built for hoist service — high starting torque, frequent reversal, etc. Loads controlled within a fraction of an inch.

**ALERT SERVICE** — Out-of-stock delivery from qualified dealers everywhere—backed by 18 branch offices and 8 conveniently located warehouses.

The Zip-Lift is America's fastest selling wire rope hoist.



*Handle it thru-the-air at lower cost*

AVAILABLE IN CAPACITIES UP TO 2000 LBS.

**P & H**

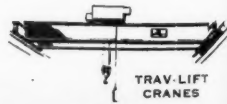
**ELECTRIC HOISTS**

4401 W. National Ave.  
Milwaukee 14, Wis.

**HARNISCHFEGER CORPORATION**



ZIP-LIFT HOISTS



TRAV-LIFT CRANES

# How An Amazing Free Survey

**ADDED  
\$3,346<sup>14</sup> TO OUR  
BANK BALANCE EVERY  
MONTH!**



**THE NATIONAL BANK**  
in account with  
*American Business*

DATE	DEPOSITS	BALANCE
JAN.		
FEB.	3,346.14	3,346.14
MAR.	3,346.14	6,692.28
APR.	3,346.14	10,038.42
MAY.	3,346.14	13,384.56
JUNE.	3,346.14	16,730.70
JULY.	3,346.14	20,076.84
AUG.	3,346.14	23,422.98
SEPT.	3,346.14	26,769.12
OCT.	3,346.14	30,115.26
NOV.	3,346.14	33,461.40
DEC.	3,346.14	36,807.54
		<b>40,153.68</b>

**ATCO**  
Material Handling  
SURVEY  
For  
AMERICAN BUSINESS

If I hadn't seen it with my own eyes, I wouldn't have believed it possible. But there it was in black and white—right in our bank balance—\$3,346.14 saved every month for a year's total of \$40,153.68.

How, and what did we save it on? The answer is simply switching from manual handling of materials to mechanized handling with Automatic's famed TRANS-TRIPLETS—those mighty midgets of electric power, Automatic's TRANSPORTERS, TRANSTACKERS and TRANSTRACTORS!

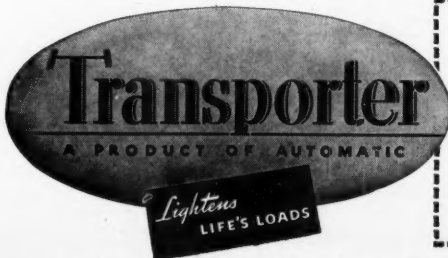
An ATCO Specialist put us wise to this saving—made a free survey of our material handling costs. And then, in a little survey booklet like you see pictured above, he showed us with facts and figures how we could LIFT AND MOVE, TOW, and EVEN STACK our materials by the simple PUSH OF A

BUTTON—the forward, reverse and lifting buttons of Automatic's famed motorized hand trucks!

Savings estimated—as against manual handling of our materials, seemed spectacular. But they were in line—BECAUSE OUR FIRST YEAR'S SAVINGS TOTALLED \$40,153.68.

Our workers have gained new found freedom from lifting and hand-moving and stacking 2,000 to 6,000 pound loads. Labor is released for more productive work—and we at last have licked the problem of high material handling overhead.

It costs you nothing to let an ATCO specialist make a survey of YOUR handling costs. Sending the coupon may earn you similar savings. Won't you mail it?



#### AUTOMATIC TRANSPORTATION COMPANY

DIV. OF THE YALE & TOWNE MFG. CO.

141 West 87th Street, Dept. D-8, Chicago 20, Ill.

Send me complete facts on how I can cut my material handling costs with Automatic's TRANS-TRIPLETS line of motorized hand trucks.

( ) Have an ATCO Specialist make a free survey of my material handling costs.  
( ) Schedule me for showing "TRANSPORTER NEWSREEL."

Company Name.....

By..... Position.....

Street Address.....

City..... Zone..... State.....

MANUFACTURERS OF THE FAMOUS TRANSPORTERS, TRANSTACKERS AND SKYLIPT ELECTRIC TRUCKS

APRIL, 1948

# Flow

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MH is MASS HANDLING—the systematic movement of the most units, in the shortest time, at the lowest cost.

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a factual, informative publication that shows how modern handling methods can save time, money and manpower in any industry.



CRANE ARM

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REPRESENTATIVES IN PRINCIPAL CITIES

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if productive output in your plant can be increased with Towmotor Mass Handling. Towmotor Fork Lift Trucks, Tractors and Accessories will provide an uninterrupted flow of materials that keeps production moving steadily and increases the productive potential of your present equipment and manpower. Take the modern approach to materials handling problems, find out now how Towmotors can increase production in any plant, large or small.



**TOWMOTOR**  
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**Fork Lift Trucks and Tractors**

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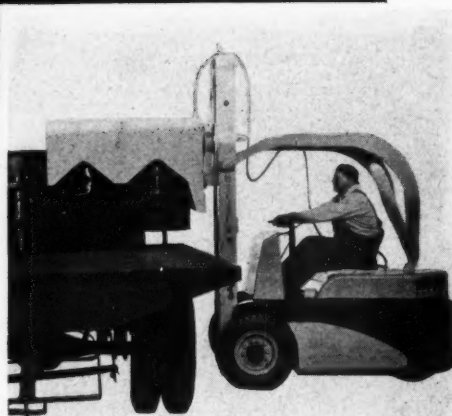
## SALES POLICY **TRAY-HART** DRUM CARRIERS

All future sales will be handled directly by Trayner-Reinhart through the respective Fork Lift Truck Manufacturers, and/or their dealers.



**EFFICIENTLY HANDLES  
STEEL DRUMS OF 55 GAL.  
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SPECIFIED —**

Width 48" — length 53" — weight  
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and 6" height variations in drum  
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It quickly pays for itself in saving in man hours and the greater efficiency with which loads can be handled. Conversion from forks to TRAY-HART CARRIERS can be made in a few minutes without tools.

Rugged high tensile steel construction withstands severe service and reduces maintenance costs. May be installed on any gasoline or electric powered fork truck.

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OAKLAND 7, CALIFORNIA

FOR FURTHER INFORMATION CONTACT YOUR LOCAL FORK LIFT TRUCK DEALER

# get 'em and forget 'em

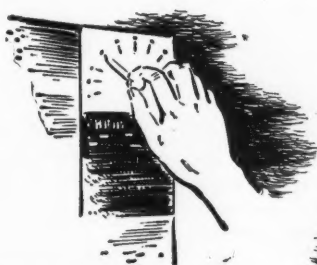
## BATTERY CHARGERS

Standard, sturdy, G-E motor-driven battery chargers can now be ordered through your truck dealer: easily installed, automatically operated, and rapidly serviced. Good for years of trouble-free service in most cases, you can get 'em and forget 'em. For any industrial truck battery, for any number of batteries, there's a motor-driven charger. Ask your truck manufacturer for the new G-E charger bulletin, GEA-3923B or write the *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*



G-E motor-driven battery chargers used for single-circuit equipment.

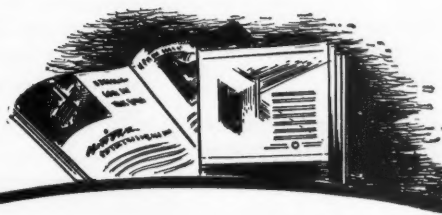
**EASY TO OPERATE** Fully automatic from start to finish, protected against dirt and damage, compact, designed and manufactured for long life, G-E chargers meet E.I.T.A. Standard Specifications. Regardless of size, these chargers are economical to operate, supplying exactly the voltage and charging current required by each battery.



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**EASY TO ORDER** Available only through truck manufacturers, this arrangement means you can get the most suitable charging equipment for your trucks, because the truck manufacturer helps you select it. You can also be sure of prompt delivery from stock. When it's G.E. we believe it's the best in design, materials, and workmanship.



NEW BATTERY-CHARGING EQUIPMENT AVAILABLE  
THROUGH YOUR

KEEP 'EM ROLLING WITH G-E CHARGERS



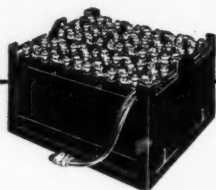
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GENERAL  ELECTRIC

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## These Battery Trucks MAKE Money!



**In Industrial Trucks, EDISON Nickel-Iron-Alkaline Batteries Give You These Important Advantages**

They are durable mechanically; grids, containers and other structural parts of the cells are of steel; the alkaline electrolyte is a preservative of steel.

They can be charged rapidly; gassing cannot dislodge the active materials.

They withstand temperature extremes; are free from freezing hazard; are easily ventilated for rapid cooling.

They are foolproof electrically; are not injured by short circuiting, reverse charging or similar accidents.

They can stand idle indefinitely without injury. Merely discharge, shortcircuit, and store in a clean, dry place.

They are simple and easy to maintain.

**S**URE, we put in our battery industrial trucks to economize on operating costs—and they've done that . . . reduced damage and injuries, eliminated demurrage, freed hands for other work. And by tiering stock to the ceiling, they've saved us the expense of building two new storage bays. But more important, they've given us new earning power, increasing our overall plant productivity nearly 25 per cent without a single foot of new floor space.

These battery trucks can keep the pace 24 hours a day every day, and their power characteristics can't be beat: instant starting; quiet operation; no fumes; no power used during stops. And remember, each of their electric motors has only one basic moving part—that means trouble-free operation.

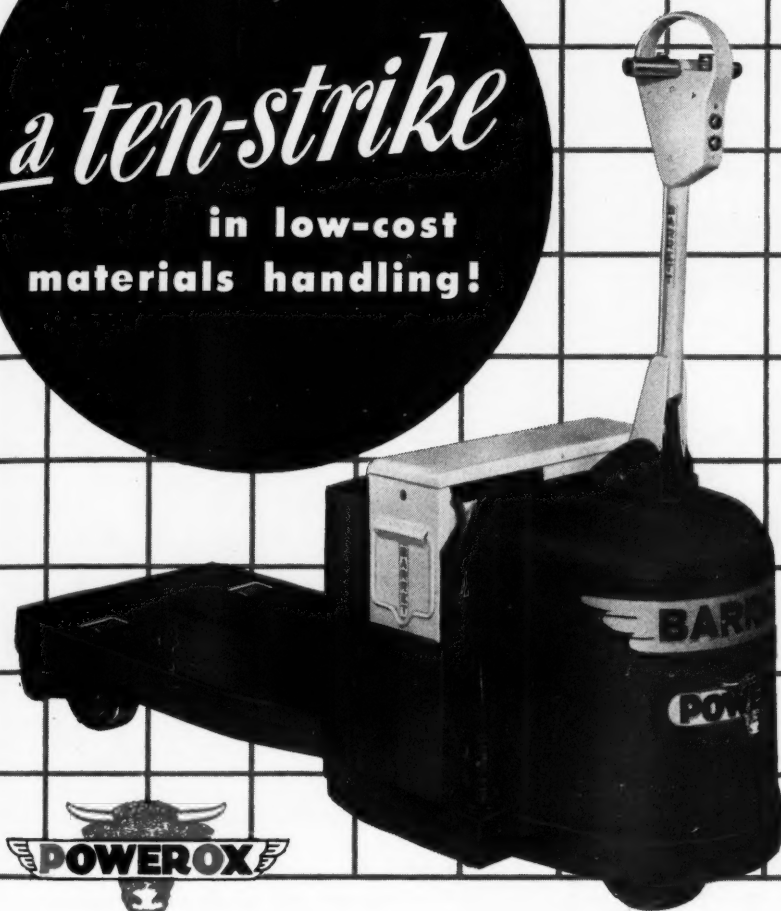
Of course, we've standardized on EDISON Nickel-Iron-Alkaline Batteries for powering them. EDISON has been the most rugged, dependable and long-lasting battery on the market for the past half-century . . . the kind we can bank on to keep our material-handling system—and our record-breaking production schedule—right up to snuff!



**EDISON**  
Nickel • Iron • Alkaline  
**STORAGE BATTERIES**

EDISON STORAGE BATTERY DIVISION OF THOMAS A. EDISON, INCORPORATED  
West Orange, N. J. In Canada: International Equipment Company, Ltd., Montreal and Toronto

*a ten-strike*  
in low-cost  
materials handling!



- ☒ **LOW COST**  
... an outstanding value
- ☒ **ELECTRIC DRIVE**  
... travels at walking speed
- ☒ **SMOOTH TRAVEL**  
... no speedups or lagging
- ☒ **ELECTRIC LIFT**  
... at the press of a button
- ☒ **QUICK LIFT**  
... 4 inches in 4 seconds
- ☒ **BIG CAPACITY**  
... your choice of two models—  
4,000 and 6,000 lbs.
- ☒ **HIGH FRAME CLEARANCE**  
... no snagging on inclines or  
uneven floors
- ☒ **EASY STEERING**  
... with full power through 27  
degrees
- ☒ **SURE BRAKING**  
... with automatic, automotive  
brakes
- ☒ **SIMPLE OPERATION**  
... all motions push-button con-  
trolled

HERE are 10 big reasons why it pays you to lift and move loads electrically ... with the Barrett PowerOx. Look over the other trucks in the field—and then compare them with what you get in a Barrett. No other truck can match the PowerOx—either in design, construction or operation!

With the PowerOx, you save time, money and labor. It enables *one man to do the work of 3 or 4!* This sturdy, dependable tool is cutting costs in hundreds of plants.

This same profit opportunity is open to you! Get the PowerOx story today. Ask to have a Barrett engineer call. He'll show you how the PowerOx can cut your costs—streamline your handling operations. Write ...



*It's yours for the asking—The Barrett PowerOx Bulletin.*

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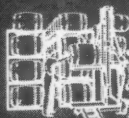
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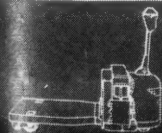
# BARRETT

ONE MAN DOES MORE THAN 3 OR 4 ... WITH A BARRETT

PORTABLE  
ELEVATORS



STEEL  
STORAGE RACK



Barrett  
Handling  
Equipment



# Its Lower Cost, Easier Assembly & Free Rolling

Satisfy Your  
3 Key Men  
... at Once!



**ROLLWAY**  
TYPE UN *Steel Cage*  
ROLLER BEARINGS



Ordinarily it's tough to get your Purchasing Agent, Production Man and Engineer to agree. And it's tougher still to get your Sales Manager to agree with them. Yet this new, special-type UN or AUN Rollway Bearing wins their approval almost at once.

**Your Purchasing Agent Says YES** because it actually costs less than most roller bearings . . . and in many cases, it's cheaper than plain bearings.

**Your Production Man Says YES** because Rollway's Type AUN (with sleeve) takes much less time and labor to assemble. You simply press the sleeve in the housing at the unit-assembly bench . . . and then slide the rollers on the shaft at the group assembly station.

**Your Engineer Says YES** because the simple practical design of the UN or AUN Roller Bearing has commercial fits and materials without sacrificing performance . . . free rolling under light or heavy loads . . . less maintenance . . . solid steel rollers for greater load capacity . . . resilient characteristics to withstand severe shock loads.

And remember this: For ALL these reasons, your Sales Manager and the money-wise prospective-buyer prefer the new, special type Rollway Bearings.

**FREE SERVICE**—If you have a bearing problem our Home Office Engineers will gladly recommend the exactly right bearing for your requirements. Meanwhile call our Sales Offices for more information about the LOW COST Type UN or AUN Steel Cage Roller Bearings.



TYPE AUN  
with Split Sleeve

TYPE UN  
without Sleeve

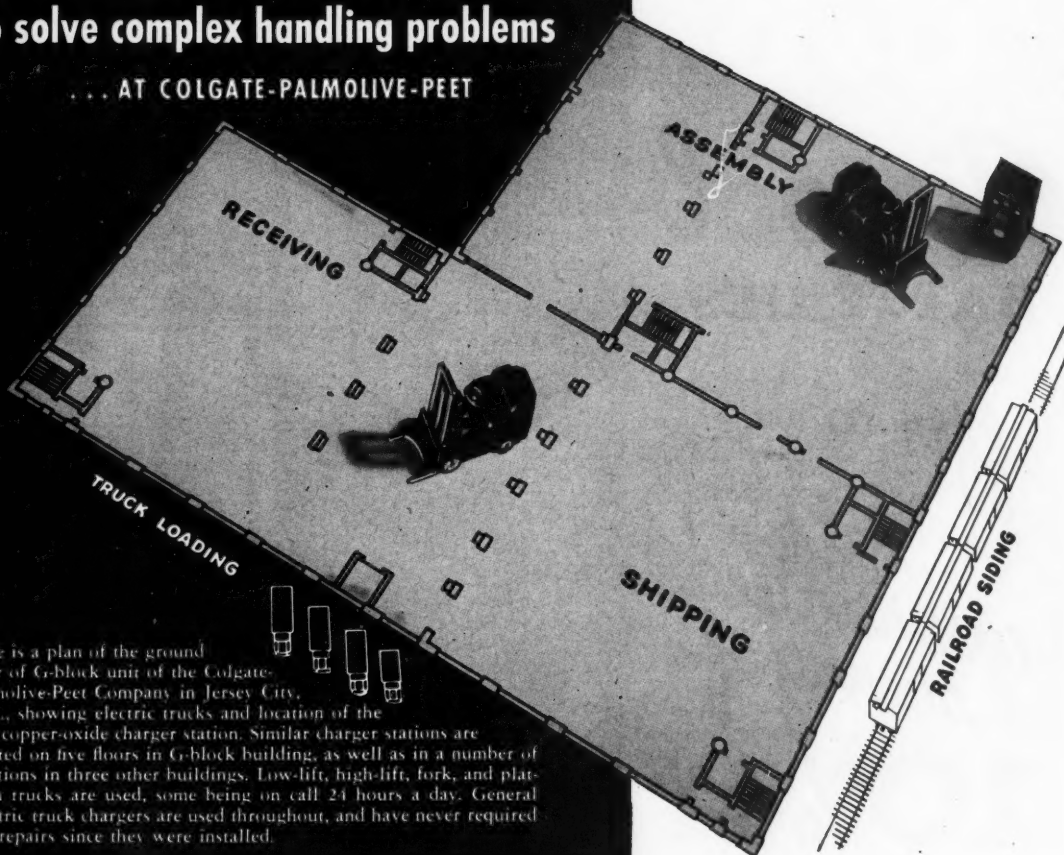
# ROLLWAY BEARINGS

ROLLWAY BEARING COMPANY, INC.  
Syracuse, N. Y.

SALES OFFICES: Philadelphia • Boston • Pittsburgh • Cleveland • Detroit • Chicago • Minneapolis • Birmingham • Houston • Los Angeles

## How G-E RECTIFIERS help to solve complex handling problems

... AT COLGATE-PALMOLIVE-PEET



Here is a plan of the ground floor of G-block unit of the Colgate-Palmolive-Peet Company in Jersey City, N. J., showing electric trucks and location of the G-E copper-oxide charger station. Similar charger stations are located on five floors in G-block building, as well as in a number of locations in three other buildings. Low-lift, high-lift, fork, and platform trucks are used, some being on call 24 hours a day. General Electric truck chargers are used throughout, and have never required any repairs since they were installed.

### Problems:

Huge volume and variety of soaps, lotions, and other toiletries to be assembled, packed, and shipped.

Receiving of raw materials and supplies, and shipping of packaged goods must be timed exactly, to eliminate costly tie-ups of limited working space.

Movement of goods on a number of floors in several buildings must be co-ordinated, to eliminate waste motions.

Existing layout of buildings and floor areas makes transfer of mobile equipment difficult, demands small turning radius in narrow aisles.

Mobile equipment has to meet requirements of unbalanced working shifts, peak load periods, uninterrupted operation.

### Solution:

**ELECTRIC  
TRUCKS**

AND

**GENERAL  
ELECTRIC  
CHARGERS**

### Advantages:

Skid and pallet loads can be handled quickly and economically.

Dependability of G-E copper-oxide battery chargers keeps trucks on the job, facilitates planning of split-second schedules.

Electric trucks can be located where the need is greatest, with G-E copper-oxide chargers right at hand. Long, nonproductive truck runs to remote charging station can be eliminated.

Electric trucks have the required ability to turn in small radius. Strategic spotting of G-E copper-oxide chargers permits trucks to remain in one area.

Ready availability of chargers to trucks provides frequent opportunities for short booster charges during working periods and between shifts, keeps trucks active. Reserve batteries and trucks are also available when needed.

*General Electric copper-oxide rectifiers for truck charging may be able to help you lower materials handling costs. Why not send for our useful booklet Aids To Modern Materials Handling today? Section A1-436, General Electric Company, Bridgeport 2, Connecticut.*

**GENERAL  ELECTRIC**

APRIL, 1948

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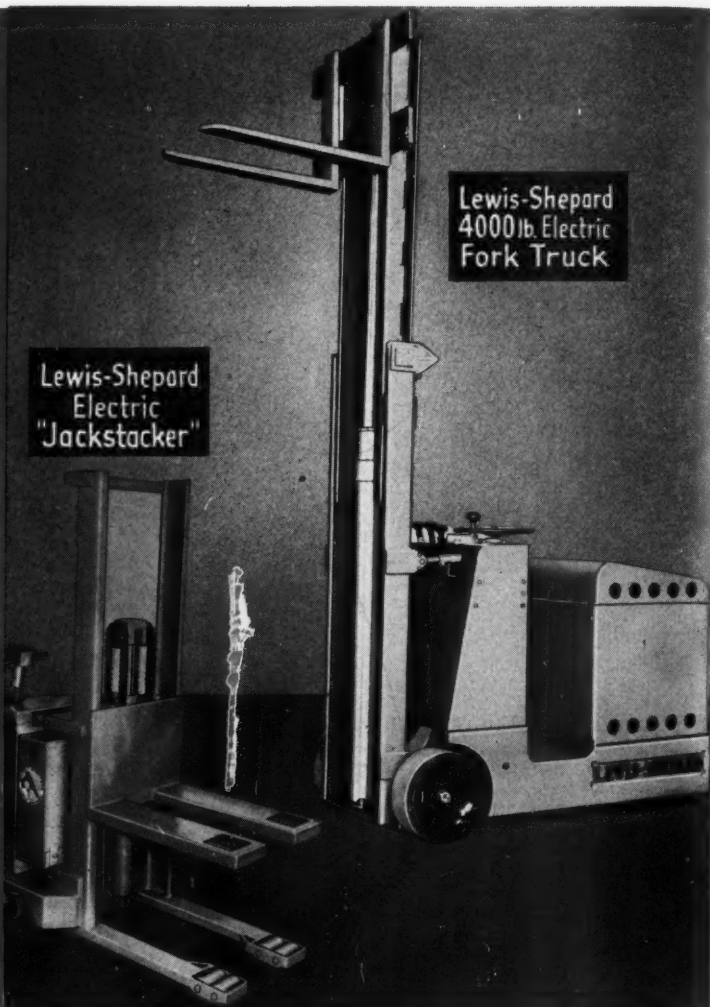
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*offer a  
cool  
guaranteed  
saving of*  
**10% PER  
TON**  
*-or more!*

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Electric  
"Jackstacker"

Lewis-Shepard  
4000lb. Electric  
Fork Truck



Third largest manufacturer  
of industrial  
lead storage batteries

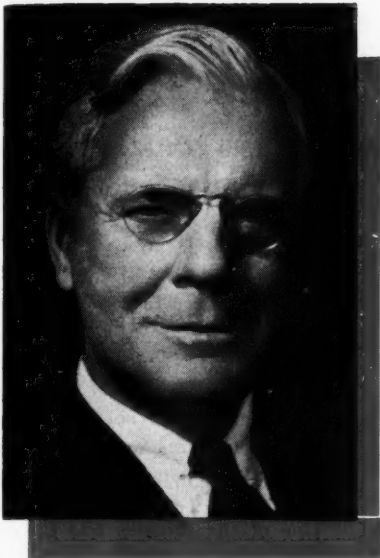
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INSULATION AND  
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- 1. Vertical Fibre Glass Retainer
- 2. Horizontal Fibre Glass Retainer
- 3. Perforated Hard Rubber Retainer
- 4. Microporous Rubber Separator



**C & D Batteries Inc., Conshohocken, Pa.**—Building Better Batteries for more than 40 years

HEAVY DUTY BATTERIES FOR ELECTRIC INDUSTRIAL TRUCKS • ELECTRIC LOCOMOTIVES • DIESEL LOCOMOTIVES  
AIR CONDITIONING AND CAR LIGHTING • TELEPHONE • MARINE • AUXILIARY POWER  
STARTING AND LIGHTING BATTERIES FOR MOTORCYCLES • AUTOMOBILES • TRUCKS • BUSES • INDUSTRIAL EQUIPMENT



A LEADER OF INDUSTRY SAYS:

## *Flow Engineering Cuts Indirect Costs*

By J. F. LINCOLN

President

The Lincoln Electric Co., Cleveland, O.

**O**VER the past twenty years, the perfection of new production techniques, the spread of work simplification ideas, the increased use of automatic machinery and the development of scientific rate setting have all been responsible for a general reduction in the total number of hours of productive labor going into the products of industry.

The same progress has not been made, however, in the use of indirect labor. In many factories, indirect overhead labor represents an unwarrantedly high percentage of the total; and a large bulk of this labor is spent in material handling. This fact presents industry today with one of its greatest opportunities for reducing manufacturing costs.

At the plant of The Lincoln Electric Company in Cleveland, one of the first long overdue projects assigned to our methods engineers at the end of the war was a complete reorganization of our production setup in order to realize some of these savings. As a result of their analysis, our plant layout is being completely changed.

The basis for the new layout is the reorganization of all departments along functional lines. Departments were formerly differentiated so that each department did only one type of operation. The departments are now being set up so that each one will manufacture completely one of the major subassemblies for delivery to the final assembly floor.

Gravity-fed conveyors have been installed which start at the steel stock and deliver parts to final assembly. Work stations are located successively along the conveyor, starting with the basic cut-off operations and going through stamping, forming, welding, machining and painting. One foreman is responsible for the entire sequence of operations.

While we have only completed about half of the proposed changes, the advantages of this redirection of the flow of material have already indicated extensive reductions in indirect costs.

The total number of productive departments has been reduced from seven to five, eliminating most of these overhead costs. Overhead labor for the entire plant, such as trucking, clerking and inspection, has been reduced. Paper work has been kept to a minimum; non-productive storage space minimized, and production control simplified. The inventory of raw material and processed parts will be reduced from about a four months' supply to a one month's supply.

Our experience at Lincoln Electric has convinced us that the extent of the possibilities in this field warrants adopting a consistent engineering approach to the problem of reducing indirect material handling costs. Management cannot discharge its responsibility for the development of this efficiency technique by merely installing a few pieces of equipment.

*J. F. Lincoln*

# HANDLING CUTS COST 60 PERCENT

WINNER OF THIRD PRIZE IN FLOW MAGAZINE'S 1947 COST ANALYSIS CONTEST

**FLOW's second \$1500 Contest is now open. First prize \$500; second prize \$300; third prize \$200, and five \$100 prizes. The rules are simple. Write for your entry blank now. Get an early start. Your paper may be a winner.**

By **LEWIS D. ANDERSON**

Assistant Engineer  
Resurrection Mining Co., Leadville, Colo.

IT became apparent in 1940 that we would have to introduce a more economical method of mining or be compelled to sell our ore at prices below our cost of mining. We mine the lead-zinc ore by the square set method. The ore is removed and the open space is filled with an open lattice work of heavy timber. Each square set is five feet by five feet by seven and one-half feet high. The small amount of ore handled and the large amount of timber necessary to hold the remaining rock makes this method the most expensive of any of the standard mining methods. It will run on the average from 20 per cent to 600 per cent higher than other methods.

## Shoveling Is A Costly Operation

Despite the high costs and other disadvantages, it is the only method applicable to our type of ore body. The ore occurs as fillings for

fisher veins or fault structures in the country rock. The ore is hard and firm and the walls are soft and rather broken. The timber holds the wall rock in place until the open spaces are filled with broken waste rock brought to the stope from another part of the mine. This waste rock firmly supports the walls and allows us to remove more of the remaining ore. Very little timber can be salvaged from the worked out stopes.

Since the ore could only be mined by square sets, our Engineering Department did little analyzing of other mining methods except to

check comparative costs. Several operating features were examined, which gave us some theories to investigate.

One of the theories was the installation of machinery in place of hand mucking or shoveling in moving the ore in the stopes. Hand mucking was a hold-over from the earlier method when the mine was smaller and the workings were closer to the surface.

The records show that one man using a shovel would handle about 2½ tons per hour, depending upon the number of hours he had been mucking and the distance he had to throw the shovel load. Figure 1 shows the decrease in amount of

Fig. 1—Effect of length of job on shovels of materials handled per minute. Output drops fast.

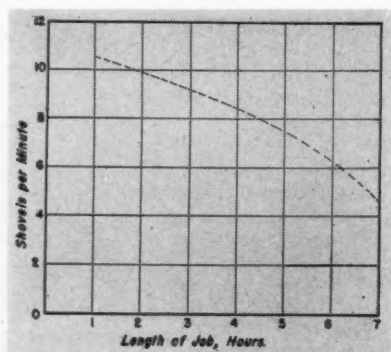


TABLE 1. Cost per Ton of Ore by Hand Mucking

Occupation	Stope Location	Work	Person	Hrs	Amt	Total
Breaking Ore	Mining Floor	Drilling & Blasting	Miner	3	\$2.25	\$2.25
	Mining Floor	Barring Down	Miner	2	1.50	
	Mining Floor	Standing Timber	Miner	2	1.50	
Mucking	Mining Floor	Standing Timber	Mucker	1	0.69	8.69
	Mucking Floor	Mucking	Mucker	7	4.82	
	Mucking Floor	Mucking	Mucker	6	4.13	8.95
					Total	\$14.89
					\$10.07	

= \$0.438 per ton  
34 Tons (2 sets)

TABLE 2: Cost per Ton of Ore by Scraper Mucking plus Slusher Depreciation

Occupation	Stope Location	Work	Person	Hrs	Amt	Total
Breaking Ore	Mining Floor	Drilling & Blasting	Miner	4	\$3.00	\$3.00
	Mining Floor	Barring Down	Miner	1	0.75	
	Mining Floor	Barring Down	Mucker	1	0.69	
Mucking	Mining Floor	Standing Timber	Miner	2	1.50	
	Mining Floor	Standing Timber	Mucker	2	1.38	4.32
	Mucking Floor	Slushing	Mucker	4	2.75	2.75
					Total	\$10.07

\$10.07  
= \$0.197 per ton

51 Tons (3 sets)  
Stope Mining Cost + Depreciation Cost = Mining Cost by Machinery  
\$0.197 + \$0.027 = \$0.224

work as the day progressed. The ore was thrown eight feet into an open chute.

For hand mucking, a panel of 65 feet was marked off and called a stope. At every 20 feet a development raise was started and driven to a haulage level 50 feet above. Mining was started from these raises. They were also used for ventilation, handling of timber and supplies, and passage of waste rock or gob.

When the ore was removed from one floor of the stope, the floor below was filled with gob to help support the sides of the stope. The gob was brought to the top of the development raises on the upper level and dumped down the raise into the stope. This necessitated more mucking as the gob had to be spread between the raises.

### Approach To Cost Reduction

The question of cost and profit arose due to the changing conditions. Our problem was to prevent the cost of handling ore from becoming excessively high in proportion to its selling price. Our mining method of square set stopes with gob filling was the only practical method of extracting the ore. Our transfer and haulage systems were capable of handling greater tonnages. The only operation left to consider was the mining of the ore in the stopes.

We felt that this was the proper place to start our studies. A study of the mining costs gave a picture of low tonnage per man, high cost per ton of ore for development, and a high cost per ton for mining and gobbing.

Direct mining costs figured about \$4.25 a ton of ore. The costs were the summation of exploration, development, stoping, hoisting, haulage, pumping, general underground expenses and general surface expenses. They also included the cost of direct materials such as powder, timber, and drill steel. They did not include taxes, insurance, interest depletion, marketing, administrative, and general office expenses.

In the search for more suitable equipment and for redesigning of the mining operations, several questions arose. What does it cost per ton of output to operate by hand

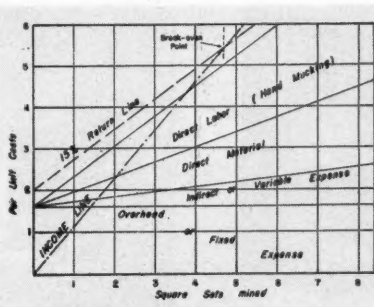


Fig. 2—Break-even chart for hand mucking in stope of average grade ore.

mucking? What does it cost by each new method? Will the acquisition of new equipment involve other changes in mine operation? Will the output be such that the equipment or the operator may be idle a large part of the time?

### Analyzing The Cost Factors

Sources of information for amounts of direct and indirect labor and materials were the individual time cards. Other expenses were found in the appropriate ledgers in the accounting department.

In our mining process the sale

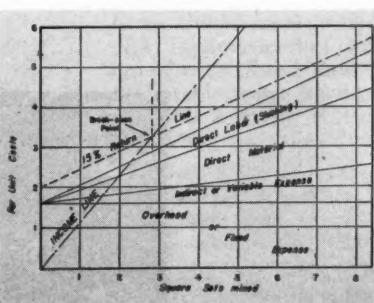


Fig. 3—Break-even chart for slusher mucking in stope of average grade ore. Greater saving.

of our ore to the mill was so rapid that at the end of any period the inventory consisted of milled and unmilled ore. The quotient obtained by dividing the sum of all the costs of the period applicable to the mining and transferring of the ore by the number of tons pro-

duced was the unit cost per ton.

Thus, we were able to divide our summation of direct, indirect, and overhead cost by the tons mined to get the cost per ton.

By further division, the cost of direct labor per ton of mining in the average stope was found. Table 1 shows a break-down of labor, time, and wages for the mining of two square sets per shift. The wages paid were \$6.00 per day for miners and \$5.50 for muckers. This cost per ton was for handling the ore in the stope exclusively, and did not include gobbing, development, haulage, or any of the other direct or indirect mining costs.

Among the several types of equipment investigated for use in the stope, the air-powered slusher hoists and scrapers seemed to predominate in all of our discussions. After due consideration based upon the weight per volume of ore, the air pressure, the maximum distance of haulage, and the rope speed of the cable, a special type of two-drum slusher was chosen.

### Depreciation Factors

Depreciation of the machine was figured on the straight-line method of calculating depreciation cost. Depreciation is not alone the dollar measure of physical deterioration of property, but rather an estimate of the amount to be treated as an operation cost in consideration of all the factors likely to determine the period of its usefulness to the business. Therefore, no consideration was given to the scrap value of the slusher, the customary procedure being to provide complete amortization of the original cost over the estimated life.

Annual Depreciation Cost =

First Cost

Life in Years

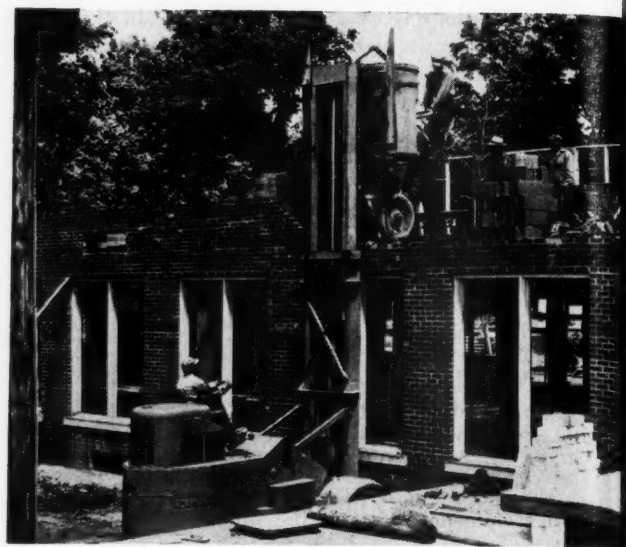
At that time, the type of slusher chosen cost \$400.00. The expected life was five years.

$$A. D. C. = \frac{\$400.00}{5} = \$80.00 \text{ a year}$$

(Turn to page 64)



FORK TRUCK with 17' 6" lift positions one cu. yd. bottom-dump concrete bucket at mixer. Bucket is anchored on forks with chain.

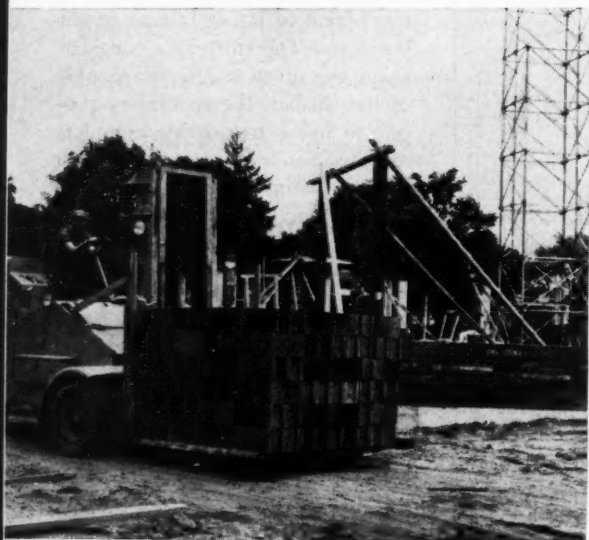


UP SHE GOES. Concrete buggies are filled, each serving about six stations. Drive wheels almost touch wall for proper positioning.

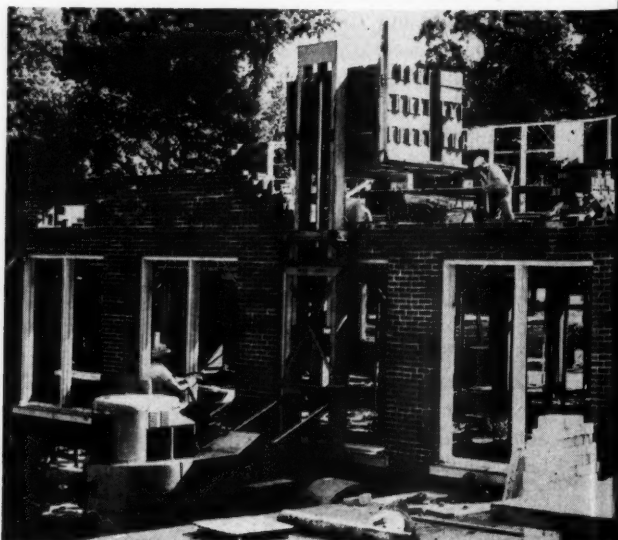
## Fork Truck on a Construction Job

MANY plant engineers are extending the usefulness of fork truck equipment to construction and maintenance jobs involving lifting and positioning of heavy equipment, piping, and structural members. Here still another use is illustrated. These photos show how the Getman Construction Co., South Haven, engaged a heavy-duty fork truck in the construction of a \$600,000 schoolhouse in Homer, Mich. The unit handled practically all materials for the first two floors unaided, due to the precise and complete planning done by the Getman Brothers. Such supplies as blocks, bricks, sills, bag cement, etc., were palletized at the railroad siding, delivered by the fork truck to stockpiles, then to the workmen on the project. In planning such a handling operation, a contractor should be guided by such local factors as types of materials to be handled, the volume, the time limits, and the distances the loads are to be transported. The construction field is a relatively new one in which this type of equipment is being increasingly employed due to the dispatch and economies made possible.

THE 10,000-pound cop. model hauls 66" x66" pallet loaded with 216 cement blocks weighing 9000 lbs., showing truck's adaptability.



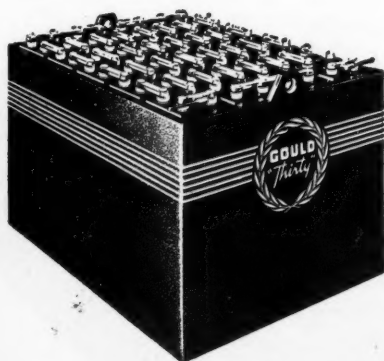
BRICKLAYERS ARE SERVED with all materials. With material supplied to jobs, truck is free to attend to other tasks.



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# POWELL

## ALL STEEL

### MATERIAL HANDLING EQUIPMENT

#### LIFT TRUCK PLATFORMS



U. S. Patent No. 1,812,218

STYLE NO. 2

POWELL Platforms are cold pressed from a single sheet of steel, corrugations being  $1\frac{1}{2}$ " wide by  $\frac{3}{4}$ " deep, spaced on 6" centers. They can be provided with Flat Top Sheet, Cut-out Legs, Knee Braces, Guide Angles, Lifting Eyes, Stakes, Stake Pockets and special super structures can be attached to meet every requirement. Adapted for use with all types of Lift Trucks.

#### CORRUGATED STEEL BOXES

All POWELL Boxes have corrugations 1" wide by  $\frac{1}{2}$ " deep, spaced on 3" centers, have 3" radius on corners and are made with a heavy Reinforcing Strip formed to the contour of corrugations the full depth of box. These strips are securely arc welded on the outside of box in addition to the solid welding of the box joints.

##### WELDED BOX PLATFORM

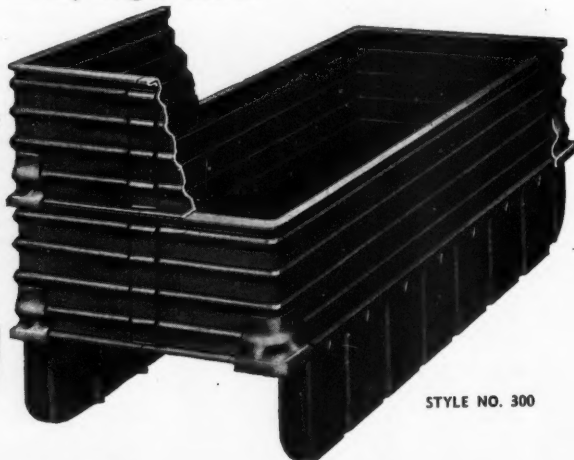
This single unit container consists of Standard Platform with standard two-piece welded type Box permanently welded to Platform.

##### STANDARD TIERING BOX

A two-piece welded box with heavy corrugated corner lugs. This box is capable of being tiered to any height desired.



STYLE NO. 200



STYLE NO. 300

*Representation in Principal Cities*

**THE POWELL PRESSED STEEL CO.—HUBBARD, OHIO**

*"ORIGINATORS of Cold Formed All Steel Handling Equipment"*

# PACKAGING MECHANICS SECTION

A regular monthly section in which are presented solutions to the problems of efficient filling and handling the boxes, cartons, bags, bottles, cases, etc., used in commerce and industry.

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## AMA 17<sup>TH</sup> ANNUAL P

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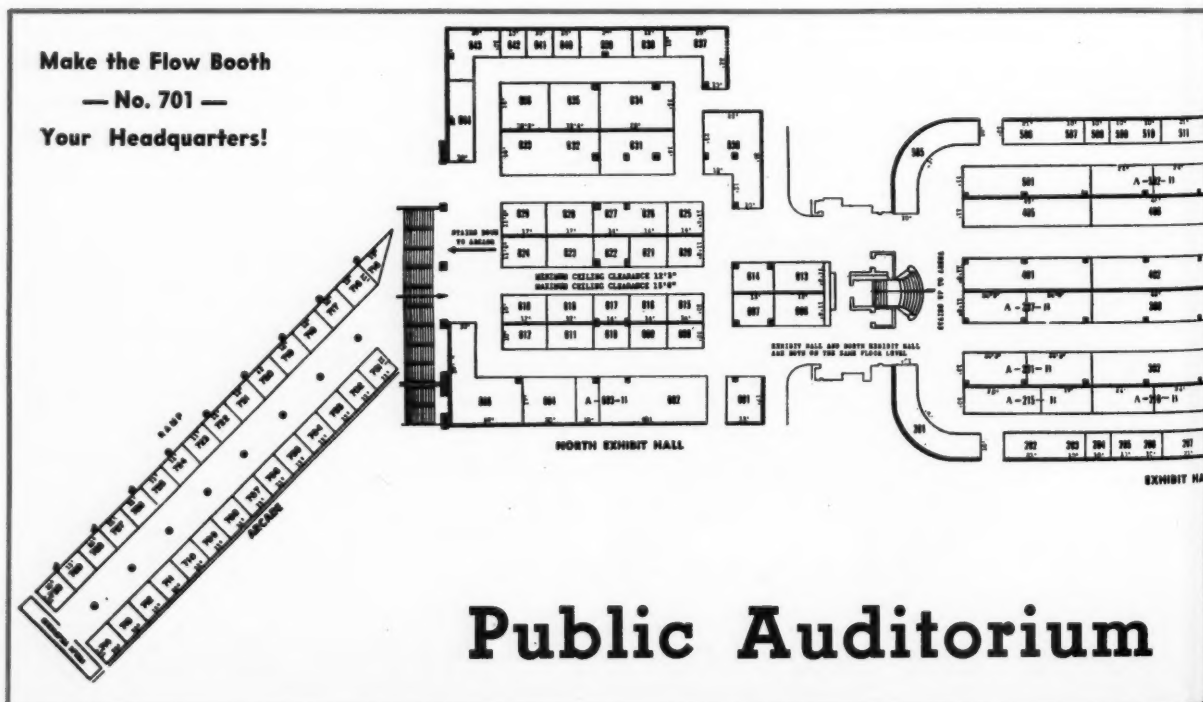
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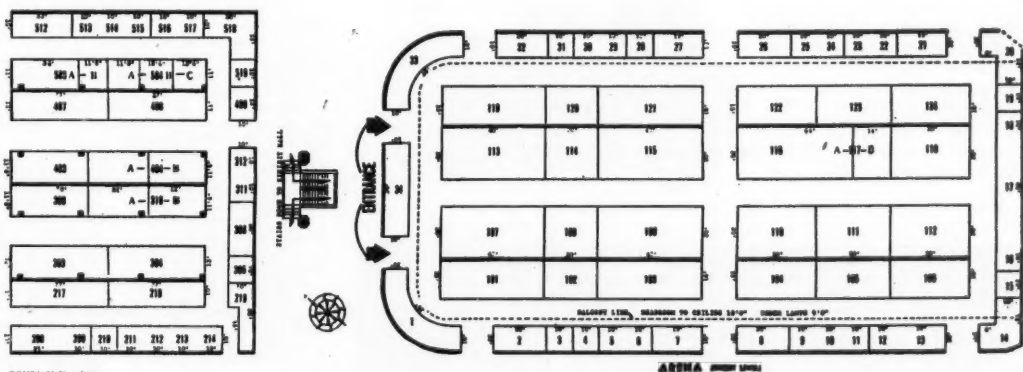
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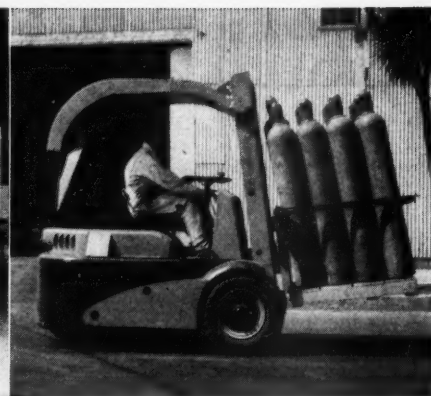
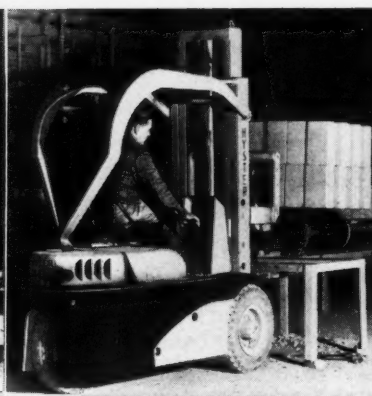
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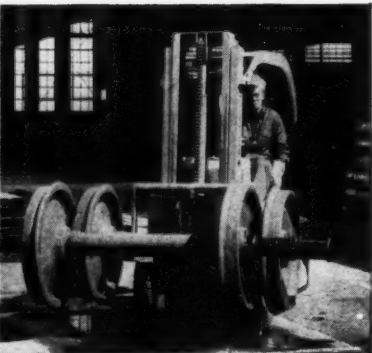
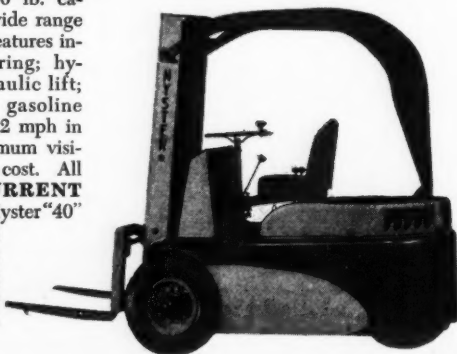
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at the AMA PACKAGING SHOW

## A-B-C PACKAGING MACHINE CORP.

**SPACES 308, 309**  
114 East McKinsey St., Moberly, Mo.  
**WHAT PRODUCTS:** Case unloader and unscrambler.  
**WHO WILL MEET YOU:** Omer A. Rupp, I. G. Nichol and Virgil Dice.

## ACME STEEL CO.

**SPACE 215-B**  
2840 Archer Ave., Chicago, Ill.  
**WHAT PRODUCTS:** Single and double wire stitchers for stitching filled bags, book stitcher, machine for attaching products to cards, combination post and straight arm stitcher.  
**WHO WILL MEET YOU:** J. E. Ott, Mgr.



F. R. Grove



J. E. Ott

Consumer Products; F. R. Grove, Mgr. Wire stitching division; P. L. Dafoe, Mgr. Central Sales Division; W. E. Kramer, C. G. Morena, E. T. Irvine, W. M. Snyder, T. P. Schulz, N. L. Anderson, sales representatives.

## ALDEN PLASTIC CORP.

**SPACE 622**  
230 Fifth Ave., New York, N. Y.  
**WHAT PRODUCTS:** Injection molded decorative boxes.  
**WHO WILL MEET YOU:** Dan Fox, president.

## ALUMINUM CO. OF AMERICA

**SPACE 119**  
801 Gulf Bldg., Pittsburgh, Pa.  
**WHAT PRODUCTS:** Aluminum foil materials laminated to papers and acetates; aluminum foil, aluminum closures.  
**WHO WILL MEET YOU:** T. A. Torrence, Product Mgr., Foil Division; T. M. Hill, Foil Division; Norman Olsen, General Sales Mgr. Aluminum Seal Co., Inc.

## ALVEY CONVEYOR MFG. CO.

**SPACES 632-633**  
3201 S. Broadway, St. Louis, Mo.  
**WHAT PRODUCTS:** Live roller conveyors.  
**WHO WILL MEET YOU:** F. W. Nollman, Sales Mgr.; Wm. Jaenicke; Richard E. An-



H. N. Jenkins



R. E. Anderson

derson, Cleveland District Mgr.; Herbert Jenkins, Asst. Cleveland Mgr.; C. R. Alvey, Philip A. Schaeffer, and James Etter.

## AMERICAN CAN CO.

**SPACE 403**  
230 Park Ave., New York, N. Y.  
**WHAT PRODUCTS:** Package developments.  
**WHO WILL MEET YOU:** W. C. Stolk, Vice President in charge of sales; G. W. Reese, Manager of Development division; F. G. Jewett, Manager of Sales Promotion; J.

Whitney King, Jr.; Advertising Mgr.; W. K. Cabot, Manager, Equipment Division; F. J. Dowling, F. I. Truxal, F. G. Richards, and W. V. Lyons, of the Cleveland sales office.

## AMERICAN VISCOSE CORP., SYLVANIA DIVISION

**SPACE 407**  
Wilmington, Delaware

## AMSCO PACKAGING MACHINERY, INC.

**SPACE 115**  
31-31 48th Ave. at 31st Place, Long Island City, N. Y.  
**WHAT PRODUCTS:** High speed rotary bag sealers, sandwich making machine for sweet cookies and frostings, whip packer filling machines and automatic weighers.  
**WHO WILL MEET YOU:** Edwin E. Messmer, Vice President; John Sylvester, Vice President.

## ARABOL MFG. CO.

**SPACE 1**  
110 East 42nd St., New York, N. Y.  
**WHAT PRODUCTS:** Adhesives.  
**WHO WILL MEET YOU:** Edward E. Diehrichs, Vice President, Sales; Arthur J. Leary, Vice President, Midwestern Div.; Roger Bailey, Sales Manager, Midwestern Div.; Roger Muther, St. Louis Manager; Denis Rollin, Edward Altman, William Knobloch, Richard Walrayen, Midwestern Div.; Francis McCourt, National Machine Accounts Executive, Eastern Div.; L. Eickstedt, Advertising Mgr.

## ARMSTRONG CORK CO.

**SPACE 23**  
Lancaster, Pa.  
**WHAT PRODUCTS:** Armstrong glass and closure line.  
**WHO WILL MEET YOU:** V. A. Game, Manager, Metal and Molded Cap Dept.; H. C. Seaman, Manager, Glass Container Dept.; R. L. Acklin, Assistant Manager, Corks Dept.; S. W. Menefee, Manager Commercial Research and Development Dept.; R. A. Horning, Assistant General Manager and General Sales Manager; W. E. Cash, Manager, Glass and Closure Advertising.

## ASSOCIATED COOPERAGE INDUSTRIES OF AMERICA, INC.

**SPACE 4**  
408 Olive St., St. Louis, Mo.  
**WHAT PRODUCTS:** Wooden barrels and kegs, tight and slack.  
**WHO WILL MEET YOU:** F. P. Hankerson, Executive Secretary; Harry Krause, Chairman, Exposition Committee; Ben Klausner, Nicholas Ryer, Jake Klausner, A. C. Schultz, James Little and Jacob Mattlin.

## BAGPRINT MACHINERY CORP.

**SPACE 630**  
4363 Woodward Avenue, Royal Oak, Mich.  
**WHAT PRODUCTS:** Model B-10C Flat and Square Bag Machine with Electric Eye. A-18 Machine with large Three Color Aniline Printer. Machines driven by Reliance V-8 Electric Drive Units.  
**WHO WILL MEET YOU:** Walter S. Ryan, Clifford A. Laury, Cyril E. Epler and A. M. Bojanower.

## C. D. BAIRD & CO.

**SPACE 502-A**  
2100 W. Pierce St., Milwaukee, Wis.

## BAKELITE CORP.

**SPACE 113**  
30 E. 42nd St., New York, N. Y.

## BARRETT-CRAVENS CO.

**SPACE 307-B**  
3255 W. 30th St., Chicago, Ill.

## PACKAGING MECHANICS SECTION

## BEMIS BROS. BAG CO.

**SPACE 216-B**  
408 Pine St., St. Louis, Mo.  
**WHAT PRODUCTS:** Burlap, cotton, paper and multiwall paper bags. Also open-mesh, wa- and Deltasal bags; terproof paperlined Tite-fit tubing and paper specialties.  
**WHO WILL MEET YOU:** A. B. Merriam, Advertising Manager; N. J. Leake, Manager, Cleveland office; A. H. Grace, special representative; R. C. Thomas, salesman; M. C. Barnes, Packaging Service; C. L. Ferguson, Sales Manager, W. D. Stohman, special representative; R. B. LeRoy, laboratory director.



W. D. Stohman

## BENSING BROS. & DEENEY

**SPACE 636**  
401 N. Broad St., Philadelphia, Pa.  
**WHAT PRODUCTS:** Aniline, Hydrotone and foil inks printed on all types of paper, cellophane, foil, etc.  
**WHO WILL MEET YOU:** James J. Deeney, Owner; Harold G. Bensing, Owner; M. B. Lousin, Chicago Manager; Adolph Mueller, Technical adviser; S. W. Haug, Advertising Manager.

## BETTER PACKAGES, INC.

**SPACE 306**  
Shelton, Conn.

## F. N. BURT CO., INC.

**SPACES 626 & 627**  
500-540 Seneca St., Buffalo, N. Y.  
**WHAT PRODUCTS:** Acetate sheeting packages; round, square, odd shaped and oval set up paper boxes; lithographing, printing and special finishes for folding cartons.  
**WHO WILL MEET YOU:** T. S. Duncanson, Vice President; W. C. Mihom, General Manager; O. W. Honsberger, Sales Manager; G. M. Diebold, Chief Maintenance Engineer; Mrs. L. S. Hagner, Director of Art and Design; A. W. Buchanan, Manager, Carton Dept.; John Rau, representative; E. A. Brewer, J. S. Foster and A. C. Foster, representatives.

## CARRY-PACK CO., LTD.

**SPACE 616**  
932 W. Wrightwood Ave., Chicago, Ill.

## CARTER ENGINEERING CO.

**SPACE 310-B**  
123 N. Hazel St., Danville, Ill.  
**WHAT PRODUCTS:** Envelope filler.  
**WHO WILL MEET YOU:** C. F. Carter, President; J. A. Miller.

## CELANESE PLASTICS CORP.

**SPACE 101**  
180 Madison Avenue, New York, N. Y.

## CELLO-MASTERS, INC.

**SPACE 604**  
1155 Randall Ave., New York, N. Y.  
**WHAT PRODUCTS:** Converted transparent aluma, primarily cellophane printing and bag making.  
**WHO WILL MEET YOU:** John COXER, Vice President; Norman Lazarus, Assistant Sales Manager; J. N. Lazarus, General Sales Manager.

## CELON CO.

**SPACE 641**  
2034 Pennsylvania Ave., Madison, Wis.

## CENTRAL STATES PAPER AND BAG CO.

**SPACE 117-B**  
5221 Natural Bridge, St. Louis, Mo.  
**WHAT PRODUCTS:** All types of filled rigid transparent packages, showboxes, and paper bags.  
**WHO WILL MEET YOU:** S. L. Abramson,

## PACKAGING MECHANICS SECTION

President; H. L. Abramson, Vice President; A. A. Abramson, Treasurer; H. Veikoff and Robert Berkenfield.

### CHASPEC MFG. CO.

SPACE 606  
342 W. Putnam Ave., Greenwich, Conn.

### CHISHOLM-RYDER CO. OF PENNA.

SPACE 715  
218 E. Chestnut St., Hanover, Penna.

WHAT PRODUCTS: Labeler fitted to handle round containers.  
WHO WILL MEET YOU: Charles M. Hesson, Design Engineer; J. J. Hesson, Sales Representative; E. J. Abendschein, General Manager.

### CLEVELAND CONTAINER CO.

SPACE 8  
6201 Barberton Ave., Cleveland, O.  
WHAT PRODUCTS: Paper and combination tin and paper cans, fibre cores and specialties.

WHO WILL MEET YOU: W. F. Walker, President; M. D. Douglas, Vice President; J. J. Callahan, M. S. Kirkpatrick, Don Quiring, R. F. Boll, B. D. Housel, R. S. Pettigrew, Robert Sayles and J. M. Francis, Sales.

### CONSOLIDATED

#### LITHOGRAPHING CORP.

SPACE 301-B  
Grand St. and Morgan Ave., Brooklyn, N. Y.  
WHAT PRODUCTS: Lithographed window, counter, floor, wall, outdoor and interior displays. Package labels, wraps, etc.  
WHO WILL MEET YOU: Ralph D. Cole, Sidney P. Voice, Charles Scheid, Henry A. Topping, Henry A. Topping, Jr.

### CONSOLIDATED PACKAGING MACHINERY CORP.

SPACE 27  
1400 West St., Buffalo, N. Y.

### CONTAINER CORP. OF AMERICA

SPACE 109  
38 South Dearborn, Chicago, Ill.  
WHAT PRODUCTS: Corrugated and solid fibre shipping containers, folding cartons, set up boxes and fibre cans.  
WHO WILL MEET YOU: M. Gankner, B. F. Kells, B. E. Frost, R. H. Greenwell, C. M. Shanahan, W. I. Sharp, Freeman Higgins.

### CONTAINER EQUIPMENT CORP.

SPACE 215-A  
204-8 Riverside Ave., Newark, N. J.  
WHAT PRODUCTS: Adjustable Carton Sealing Machine complete with automatic carton opener, product inserting conveyor, automatic circulating glue pump system.  
WHO WILL MEET YOU: Fred W. Kucklinsky, William E. Haberland, M. Derrico, H. W. Clowe, E. M. Kucklinsky, Dalton Szelle, Robert Woelfer, and Roy F. Heller.

### CROWN CORK SPECIALTY CORP.

SPACE 504-A  
1226 East Garfield, Decatur, Ill.  
WHAT PRODUCTS: Meritcral caps for cosmetic jars and Kork-N-Seal caps and can fittings.  
WHO WILL MEET YOU: Don Hill, President; Wm. R. Fox, Sales Manager; Jack Jordan, Yes Hoffman, George Schaffer, Charles Lawrence, Ted Costa, salesmen.

### CRYSTAL TUBE CORP.

SPACE 605  
538 S. Wells St., Chicago, Ill.  
WHAT PRODUCTS: Acetate containers and coated materials. Cellophane packaging units.  
WHO WILL MEET YOU: Harold Goldring and Reynold Goodman, Vice Presidents; Eileen Clifford, Sales Promotion Director.

### DERBY SEALERS, INC.

SPACE 628  
Derby, Conn.  
WHAT PRODUCTS: Moistening applications for three and four inch tape dispensing machines. Labelers, speed mailer envelope moistener, pull and tear tape moisteners.  
WHO WILL MEET YOU: A. P. Krueger, President; W. S. Shee, Assistant to President; H. C. Zuengler, Cleveland District distributor.

### DIAGRAPH-BRADLEY INDUSTRIES

SPACES 205-206

3755 Forest Park Blvd., St. Louis, Mo.



O. K. Patterson

WHAT PRODUCTS: Stikfast label gummers, Kari-All parts assorter, stencil cutting machines, fountain brushes, fountain markers, stenciling inks, oiled stencil board, etc.  
WHO WILL MEET YOU: John G. Burton, Vice President and General Sales Manager; O. K. Patterson, Sales Manager.

### P. H. DIFFENBAUGH CO.

SPACE 717  
2903 Hall St., Dallas, Tex.  
WHAT PRODUCTS: Anderson cellophane bag making machine.  
WHO WILL MEET YOU: P. H. Diffenbaugh, owner; I. Diffenbaugh, controller; Curtis R. Atkins, Installations and Service; James G. Dowd, machine operator; Bonnie D. Atkins, inspector and packer of bags.

### THE DOBECKMUN CO.

Cleveland, O.  
WHAT PRODUCTS: Standard size bags, converted acetate, cellophane, ploffilm, aluminum foil and polyethylene.

### DOUGHBOY INDUSTRIES, INC.

SPACE 503-A  
New Richmond, Wisc.  
WHAT PRODUCTS: Dried food products sealer and conveyor, rotary heat sealing machines, conveyor tables, Doughboy-Haugh seamer.  
WHO WILL MEET YOU: Jules L. Steele, Riley Livingston, C. P. Arnold, Niles Williams and Gordon Haugh.

### DOW CHEMICAL CO.

SPACE 121  
1000 Main St., Midland, Mich.

### E. I. DU PONT DE NEMOURS & CO., INC.

SPACE 302  
Wilmington, Dela.

### EASTMAN KODAK CO.

SPACE 111  
Rochester, N. Y.  
WHAT PRODUCTS: Kodapak in gauges from .00088" to .020". Demonstration of electronic heat-sealing operation of corner stays.  
WHO WILL MEET YOU: L. L. McGrady, A. B. Corey, H. Lloyd, Paul Brame, C. R. Lee, V. M. Howe, C. D. Sneed, M. P. Tucker, E. M. Drummond, W. Seaman, R. Caire, J. E. Gruntler, L. Mills, S. D. Osman.

### ECONOMIC MACHINERY CO.

SPACE 106  
Fremont & Delaware Sts., Worcester, Mass.

### EINSON-FREEMAN CO., INC.

SPACE 107  
Starr, Borden & Gonda Aves., Long Island City, N. Y.

### ELGIN MANUFACTURING CO.

SPACE 19  
200 Brook St., Elgin, Ill.

### THE EXACT WEIGHT SCALE CO.

SPACE 618  
944 West Fifth Ave., Columbus, O.  
WHAT PRODUCTS: Electronic Checkweigher; Vibratory filling equipment; predetermined weight scales and industrial scales.  
WHO WILL MEET YOU: Wm. A. Scheurer, Vice President and Sales Manager; D. M. Laird, Assistant Sales Manager; Warren Schieser, Electronic Dept.; R. W. Grant, representative; W. L. Brocker, Vice President and General Manager, Exact Weight Scale Co., Ltd.

### FACILE CORP.

SPACE 310-A  
675 Fifth Ave., New York, N. Y.

### J. L. FERGUSON CO.

SPACE 408

Route 52 at Republic Ave., Joliet, Ill.

WHAT PRODUCTS: Top and bottom carton sealer and volumetric filler, case imprinter and single auger packer. Shipping case sealer.

WHO WILL MEET YOU: H. L. Greene, President; P. D. Bowley, Vice President; C. A. Claus, Vice President, Eastern sales; E. H. Eustice, Cleveland Manager; J. W. Bradford, New England territory; D. J. Wolfe, New York office; T. J. McLay, Baltimore office; D. O. Ferguson, Joliet office; W. J. Thorneley, Engineer.

### FITCHBURG PAPER CO., DECOTONE PRODUCTS DIV.

SPACE 705  
642 River St., Fitchburg, Mass.

### FLOW

SPACE 701

1240 Ontario St., Cleveland 13, O.  
WHAT PRODUCTS: FLOW DIRECTORY of Material Handling Equipment, Machinery and Accessories. FLOW, The Magazine which Integrates Material Handling Equipment into the Flow of Production.

WHO WILL MEET YOU: Irving B. Hexter, President and Publisher; L. P. Aurbach, Vice President; Manfred Schueler, Editor; Charles N. Demian, Associate Editor; Nadine Stilla, readers' service; Harold P. Behm, Business Manager; L. L. Oppenheim, Ray Yaple and Edwin M. Joseph, Sales.

### FOOD MACHINERY CORP.

SPACE 634  
3075 12th St., Riverside, Calif.

### GAYLORD CONTAINER CORP.

SPACE 401  
111 No. Fourth St., St. Louis, Mo.  
WHAT PRODUCTS: Corrugated and solid fibre boxes, folding cartons, Kraft bags, Kraft Wrapping paper.  
WHO WILL MEET YOU: Ben M. Williams, Sales Promotion Manager; Frank B. McGregor, Sales Promotion Dept.; R. K. Withrow, Sales Manager, Carton Div.; Kent Ravenscroft, Advertising Manager; Oakleigh R. French, Advertising Representative.

### GENERAL BOX CO.

SPACE 511  
500 N. Dearborn St., Chicago, Ill.  
WHAT PRODUCTS: Photographs and samples of wirebound boxes and crates, corrugated and cleated corrugated containers, stitched panel crates, wirebound pallet boxes and wooden pallets.

WHO WILL MEET YOU: N. A. Fowler, Vice



N. A. Fowler



J. F. Ferguson

President and Director of Sales and Research; J. F. Ferguson, Vice President and General Sales Manager; Geo. T. Walne, District Sales Manager; W. G. Vance, Salesman; T. W. Regan, District Sales Manager; M. J. Watkins, Advertising Manager.

### GENERAL CONTAINER CORP.

SPACE 631  
4600 Brookpark Rd., Cleveland, O.  
WHAT PRODUCTS: Folding, set up and corrugated boxes.  
WHO WILL MEET YOU: G. D. Robinson and G. M. Kincaid, Cleveland Corrugated Box Co.; C. T. Schunk and C. M. French, Great Lakes Box Co.; P. F. Vandervort and W. H. Lamb, Canton Corrugated Box Co.; C. R. Friesner, Albany Corrugated Container

Corp.; T. R. Edwards, Niagara Corrugated Box Co.; F. L. Wagner, Dubuque Container Corp.; Edward Hunt, Hunt-Crawford Co.; N. H. Carpenter, Jr., Muskingum Fibre Products Co.; R. W. Agler, General Container Corp.

# **GENERAL MILLS, INC.,** Mechanical Division

SPACE 33

1620 Central Ave., Minneapolis, Minn.  
**WHAT PRODUCTS:** Unipak filler, ice cream carton set up machine, ice cream carton filler machine, ice cream carton closer machine. Vacuum filling machines.

**WHO WILL MEET YOU:** A. D. Hyde, President, Mechanical Division and Director of Research; G. C. Becker, Vice President and General Manager; E. T. Coopat, Sales Manager, Packaging Equipment; P. E. Fischer, Chief Engineer; M. B. Sturdevant, Dept. Engineer; D. E. Wetzel, Sales representative; H. A. Rohdin, W. A. Roberts, Wm. Fischer, Al Jay and Lee Merrill, representatives.

# **A. J. GERRARD & CO.**

SPACE 15

221 N. LaSalle St., Chicago, Ill.  
**WHAT PRODUCTS:** Complete line of steel-binder stitching machines, steel strapping, fibre strapping for light cartons.  
**WHO WILL MEET YOU:** Henry Wenk, Clarence McCarter, Bernard Barnes.

# **FRED GOAT CO., INC.**

SPACE 218

318 Dean St., Brooklyn, N. Y.

# **GOODYEAR TIRE & RUBBER CO.**

SPACE 402

1144 E. Market St., Akron, O.

# **ADOLPH GOTTSCHO, INC.**

SPACE 502-B

1 Hudson St., New York, N. Y.  
**WHAT PRODUCTS:** Autocoder, Markocoder, Cartoncode, Automatic Industrial Printer, Jacoder, Markomatic "9," Rolacoder, Rolamarker, Cylindaprinter, Conveyor-coder.  
**WHO WILL MEET YOU:** Adolph Gottscho, President; Ira Gottscho, Secretary; A. Van der Lyn, and Ken Kuyett.

# **HANKINS CONTAINER CO.**

SPACE 219

3044 W. 106th St., Cleveland, O.

# **HAYSSON MANUFACTURING CO.**

SPACES 22, 23

Sheboygan, Wisc.

# **HAZEL-ATLAS GLASS CO.**

SPACE 124

15th & Jacob Sts., Wheeling, W. Va.  
**WHAT PRODUCTS:** Packers jars and bottles, metal closures.  
**WHO WILL MEET YOU:** Frasier Smith, Advertising Manager; W. H. Baird, J. L. Hendrickson, Wheeling office; A. L. Key, New York office; J. F. Chaney, Minneapolis office.

# **HEAT SEAL-IT CO.**

SPACES 311, 312

Lancaster & Parrish Sts., Philadelphia, Pa.

# **H. H. HEINRICH, INC.**

SPACE 501

200 Varick St., New York, N. Y.  
**WHAT PRODUCTS:** Richmond Rocket roto-gravure press, vulcanizers and tank cleaning units.  
**WHO WILL MEET YOU:** H. H. Heinrich, President; E. L. Harley, Vice President; D. Roemer, Albert Merz, Secretary-treasurer, Inta-Roto Machine Co.; William Armour, President, Inta-Roto Machine Co.

# **HIGH PRODUCTION MACHINE CO., INC.**

SPACE 503-B

533 N. 11th St., Philadelphia, Pa.  
**WHAT PRODUCTS:** Wrapping machine and gluing machine.  
**WHO WILL MEET YOU:** Douglas T. Neale, President; Harold K. Reifsnnyder, Vice



H. K. Reifsnnyder

President; James L. Creekman and Roy Hahn.



D. T. Neale

# **HINDE & DAUCH PAPER CO.**

SPACE 114

Sandusky, O.  
**WHAT PRODUCTS:** Complete line of specialty packages, including luggage boxes, prepaks, shipping-display boxes, insulapak, plypak and flexpak. Also engineered shipping boxes and several new box styles.

**WHO WILL MEET YOU:** J. H. Macleod, Vice President; C. M. Schott, Sales Manager; Paul Meelfeld, Advertising and Sales Promotion Manager; C. U. Harvey, Division Manager; W. M. Henderson, District Sales Manager; John Grunden, F. Paul Andres and P. F. McGreal, sales representatives.

# **FLOYD A. HOLES CO.**

SPACES 703, 704

100 Northfield Rd., Bedford, O.

# **HOPE MACHINE CO.**

SPACE 629

9404 State Rd., Philadelphia, Pa.

# **HORIX MFG. CO.**

SPACE 301-A

Greenway Drive, Pittsburgh, Pa.

# **IDEAL STENCIL MACHINE CO.**

SPACE 613

104 Ideal Block, Belleville, Ill.  
**WHAT PRODUCTS:** Clip-a-tape dispenser, stencil cutting machines, fountain stencil brushes, stencil inks, boards and shipping room supplies.  
**WHO WILL MEET YOU:** Charles Geo. Beck, Sales Manager.

# **IMPORTED DELICACIES CO.,** Container Division

SPACE 404-B

150 Spring St., New York, N. Y.  
**WHAT PRODUCTS:** Decorated lithographed and embossed metal boxes and containers.  
**WHO WILL MEET YOU:** Ben Greenstein, sales; A. B. Katzman, packaging expert; M. Rehns and Wm. Blum, sales.

# **INDUSTRIAL TAPE CORP.**

SPACE 304

U. S. Highway No. 1, New Brunswick, N. J.  
**WHAT PRODUCTS:** Predetermined length dispenser, cellophane tapes, cloth and acetate fibre industrial tapes, permacel paper.  
**WHO WILL MEET YOU:** James E. Spencer, Assistant to President; John H. Scherer, Sales Manager; Geo. E. Chisholm, Advertising Manager; L. E. Barnes, Manager of Textel Div.; R. T. Hamilton, Central Div. Manager.

# **INLAND STEEL CONTAINER CORP.**

SPACES 29, 30

700 W. Morris St., Indianapolis, Ind.

# **INTERCHEMICAL CORP.,**

International Printing Ink Division

SPACE 26

350 Fifth Ave., New York, N. Y.  
**WHAT PRODUCTS:** Packages printed with all types of inks, including gravure, oil inks, moisture set inks, heat set inks, offset, aniline, etc.

**WHO WILL MEET YOU:** W. F. Cornell, Vice President; Ralph Rogers, Head of Lithographic Supplies; O. C. Holland, Assistant Advertising Manager; W. S. Ruxton, Western District Sales Manager; George Welp, Director Advertising, Sales Promotion and Publicity; L. F. Boyle, Manager, Detroit Branch; Carl Gibbs and L. H. Fish, salesmen; W. J. Gorle, Jr., Manager, Cleveland branch.

## **PACKAGING MECHANICS SECTION**

# **INTERNATIONAL STAPLE & MACHINE CO.**

SPACES 513-514-515

Hovertown, Pa.

**WHAT PRODUCTS:** Pneumatically operated stationary machine.  
**WHO WILL MEET YOU:** Werner Schafroth, President; D. W. McKee, General Manager.

# **IVERS-LEE CO.**

SPACE 605-A

215 Central Ave., Newark, N. J.  
**WHAT PRODUCTS:** Various standard types of unit packaging.

**WHO WILL MEET YOU:** L. I. Volckening, President; L. L. Salfisberg, Vice President; E. W. Mason, Sales Manager; M. J. Salfisberg, J. O'Mears and R. Johnson, sales representatives.

# **R. A. JONES & CO., INC.**

SPACES 724, 725

Box 485, Cincinnati, O.

**WHAT PRODUCTS:** Constant Motion Cartoner for three sizes of bottles.  
**WHO WILL MEET YOU:** Wickliffe Jones, President; Arthur E. Motch, Vice President; Robert T. Foreman, Production Manager; Jerome R. Wilson, Eastern Sales Manager.

# **KALAMAZOO VEGETABLE PARCHMENT CO.**

SPACE 2

Kalamazoo, Mich.  
**WHAT PRODUCTS:** Food protection papers, printed carton sealing papers.  
**WHO WILL MEET YOU:** Glenn Stewart, Advertising Manager; Merle Wood, Waxed Paper Sales Manager; Arthur Sterenberg, Harrison Jones, Gordon Curry.

# **PAUL L. KARSTROM CO.**

SPACE 637

2620 South Indiana Ave., Chicago, Ill.

# **KIMBERLY-CLARK CORP.**

SPACE 307-A

Neenah, Wisc.  
**WHAT PRODUCTS:** Kimpak creped wadding.  
**WHO WILL MEET YOU:** R. B. Sawtell, Sales Manager; Frank A. Biederman, Advertising and Promotion Manager; S. L. Swenson, Product Engineer; R. J. Piltz, District Manager; Sidney M. Shellhammer, James E. Kirk and William M. Dunn, sales representatives.

# **LAKSO CO.**

SPACE 721

40 Academy St., Fitchburg, Mass.  
**WHAT PRODUCTS:** Tablet bottler.  
**WHO WILL MEET YOU:** E. E. Lakso, Owner; R. H. Zeidler, General Manager; Eugene Lakso, Sales Manager.

# **LAMSON CORP.**

SPACES 9, 10, 11

Lamson St., Syracuse, N. Y.  
**WHAT PRODUCTS:** Sample of products, small scale working model, full-size utility conveyor, multi stage blower, industrial vacuum cleaner.  
**WHO WILL MEET YOU:** D. F. Dietz, C. A. Burton, H. C. Keller, C. Hennessy, G. D. Beaver, A. J. Cole, C. S. Jennings, Syracuse; J. H. Webb, G. W. Williams, F. Roubush and E. N. Davis of Cleveland.

# **LEEDS SALES CO., INC.,** Specialty Package Division

SPACE 20

34 West 34th St., New York, N. Y.



C. M. Leeds



R. C. Hazen

## PACKAGING MECHANICS SECTION

**WHAT PRODUCTS:** Cellophane, glassine and foil bags and wraps. Lithographed labels and advertising materials. Rotogravure printed packaging materials, salt and pepper shakers, folding boxes and set up boxes.

**WHO WILL MEET YOU:** C. M. Leeds, president; R. C. Hazen, vice president; Wm. McBurnie, Frank P. Romano, Stanley Winkel, Frank P. Carey, Geo. F. Bartlett, Leo Glantz, Lucy Duggan, Genevieve Tietjen, J. Nelson, S. Nass, J. Desmarais, L. Kulman, and H. Burman.

### L. LINK & CO., INC.

**SPACE 519**  
149 Lafayette St., New York, N. Y.  
**WHAT PRODUCTS:** Gummed tape dispensing machines.  
**WHO WILL MEET YOU:** William Schwartz, Vice President.

### LYNCH CORP.

**Package Machinery Division**  
**SPACES 602, 603-B**  
Toledo, O.  
**WHAT PRODUCTS:** Wrap-O-Matic Model RA, Wrap-O-Matic Model PB, Morpac Junior Model JQE, Morpac Model TF.  
**WHO WILL MEET YOU:** M. H. Pendergast, executive vice president and general manager; J. P. McCarthy, vice president in charge of manufacture; M. V. Girkins, director of sales; T. C. Werbe, Jr., sales manager; W. E. Girkins, eastern representative; Oscar Sandberg, engineer.

### MRM CO., INC.

**SPACE 611**  
191-3 Berry St., Brooklyn, N. Y.  
**WHAT PRODUCTS:** Fully automatic liquid filler with all lucite contact parts.  
**WHO WILL MEET YOU:** H. D. Manas, President and Engineering; Frank Rossetti, Engineering; V. J. Gallagher, D. Williams, J. Williams, sales.

### MACHINERY SERVICE CO.

**SPACE 603-A**  
Slanson Ave. at Templeton,  
Huntington Park, Calif.

### MANHATTAN PASTE AND GLUE CO., INC.

**SPACES 24, 25**  
429 Greenpoint Ave., Brooklyn, N. Y.

### M. MANN & CO.

**SPACE 607**  
236 W. 27th St., New York, N. Y.

### MARATHON CORP.

**SPACE 405**  
Menasha, Wisc.

### MARSH STENCIL MACHINE CO.

**SPACE 7**  
Belleville, Ill.  
**WHAT PRODUCTS:** Stencil machines and marking supplies including new electric model stencil machine.  
**WHO WILL MEET YOU:** Walt Marsh, President; E. J. Marsh, Secretary; J. H. Marsh, Harry Brown, L. M. Salomon, A. S. Meyer, Clayton Rantz, Gordon Bennett, Robert Larceny.

### MERCHANTS BOX CO.

**SPACE 508**  
Dallastown, Pa.

### MID-STATES GUMMED PAPER CO.

**SPACE 620**  
2515 So. Damen Ave., Chicago, Ill.  
**WHAT PRODUCTS:** Flat gummed papers, green core gummed tapes, green core gummed cloth tapes, heat seal label papers, green core Rap and Pamel Rap.  
**WHO WILL MEET YOU:** Paul Hong, Cleveland representative; Burton Lee Trosdom, Sales Promotion Manager; A. C. Kilberg, specialty sales.

### MILLER WRAPPING & SEALING MACHINE CO.

**SPACE 115**  
18 S. Clinton, Chicago 6, Ill.  
**WHAT PRODUCTS:** Wrapping machine with pull through mechanism, automatic sheet-gluer, automatic wrapping machine.  
**WHO WILL MEET YOU:** M. H. Corley, President; J. P. Corley, Vice President; R. H. Freeman, Sales Manager; J. M. Harberg and C. W. Montgomery, sales representatives.

### MILPRINT, INC.

**SPACE 305**  
431 W. Florida St., Milwaukee, Wisc.  
**WHAT PRODUCTS:** Packaging of bakery goods, meats, cheese, potato chips, pop corn, textiles, liquor, food packaging, etc. Items in packaging line utilizing foil, glassine, cellophane, acetate, paper stock, etc.  
**WHO WILL MEET YOU:** M. T. Heller, President; Wm. Heller, Vice President; Roy E. Hanson, General Sales Manager; Shy Rosen, Director of Eastern Div. Operations; Stan Coumbe, Director of Western Div. Operations; and L. R. Zimmerman, Director of Chicago office.

### MINERVA WAX PAPER CO.

**SPACE 716**  
976 Union Commerce Bldg., Cleveland, O.

**WHAT PRODUCTS:** Waxed papers for food and industrial packaging, paper mounted foil, specialty printed papers. Heat seal coated papers and laminated papers and foils for specialty packaging.



R. C. McCaskey

**WHO WILL MEET YOU:** R. G. Hathorn, Chairman of the Board; A. F. Gluck, President; R. C. McCaskey, Vice President in charge sales; W. L. Hogue, Vice President in charge operations; Joe Thompson, Technical Director; Fred C. Gluck, John Brunt, James Spencer and Patrick E. Gray.

### MINNESOTA MINING & MFG. CO.

**SPACE 624**  
St. Paul, Minn.

**WHAT PRODUCTS:** Packaging adhesives, special packaging machinery.  
**WHO WILL MEET YOU:** C. C. Smith, General Sales Manager; L. E. Weyand, Vice President; D. W. Maker, Assistant to Vice President; B. W. Lueck, Sales Manager; P. W. Mereness, Eastern Sales Manager; W. E. Zimmerman, Buffalo Sales Manager; R. C. MacFarland, Product Merchandiser; W. A. Aldrich, Engineering Dept.

### MONSANTO CHEMICAL CO.

**SPACE 118**  
1700 So. Second St., St. Louis, Mo.

### KENNETH J. MOORE & CO.

**SPACES 718-719**  
1778 W. Estes Ave., Chicago, Ill.  
**WHAT PRODUCTS:** Gluemaster Round Container Labeler, conveyor gluer, label paster, glue cookers, carton gluer and table gluers.  
**WHO WILL MEET YOU:** Kenneth J. Moore, President; Frank McBratney, Chief Engineer; Martine Tiemann, C. W. Beals and Harry J. Sanders, sales representatives.

### MOSSTYPE CORP.

**SPACE 638**  
33 Flatbush Ave., Brooklyn, N. Y.  
**WHAT PRODUCTS:** Rubber printing plates, design rollers, rubber plate mounting and proving machine.  
**WHO WILL MEET YOU:** A. R. Bradie, Vice President; John E. Lecraw, Production Manager.

### MULTISTAMP CO., INC.

**SPACE 621**  
Norfolk, Va.  
**WHAT PRODUCTS:** Stencil duplicators, multiple addressing and marking equipment.  
**WHO WILL MEET YOU:** P. H. Mason, Norfolk, Va., factory.

### NASHUA GUMMED AND COATED PAPER CO.

**SPACES 211, 212, 213, 214**  
Franklin St., Nashua, N. H.

### NASKO MACHINERY CORP.

**SPACE 643**  
19210 Stansbury Ave., Detroit 21, Mich.  
**WHAT PRODUCTS:** Paper seal embossing press, two color; Aniline gapprinting machine, four color; Stoesel automatic cylinder press.  
**WHO WILL MEET YOU:** Richard W. Nagel, President; William Koch, demonstrator; Ludwig Bischoff, Executive Eastern representative; Otto Schmitt, representative.

### NAT'L STARCH PRODUCTS, INC., National Adhesives Division

**SPACES 116, 117-A**  
270 Madison Ave., New York, N. Y.  
**WHAT PRODUCTS:** High speed resyn adhesives for all machine applications and complete line of adhesives of all packaging and converting operations.  
**WHO WILL MEET YOU:** Frank Greenwall, President; Chester Gage, Vice President; D. D. Pascal, Technical Director; Harry Kaufmann, B. C. Gordon, S. S. Snyder, F. W. Bradley, H. D. Olmsted, H. C. Laning, F. R. Loetterle, Wm. Sederlund, John C. Clay, R. C. McGaffin, J. J. Preston, J. W. McClaran and S. S. Weisman.

### NATIONAL METAL EDGE BOX CO.

**SPACE 102**  
12th and Callowhill Sts., Philadelphia, Pa.  
**WHAT PRODUCTS:** New designs in packages.  
**WHO WILL MEET YOU:** M. P. Junkin, Sales Manager; J. Allen Jones, W. G. Muhleisen, S. G. Karr, S. H. Nicholson, L. E. Berry, C. H. Black, E. L. Bray, Charles Paist, R. A. Branca.

### NATIONAL WOODEN BOX ASSN.

**SPACE 217**  
201 Barr Bldg., Washington, D. C.  
**WHAT PRODUCTS:** Wooden boxes, crates and pallets, light weight wooden fruit and vegetable containers and collapsible boxes and crates.  
**WHO WILL MEET YOU:** C. D. Hudson, Wm. H. Sardo, Jr., Chas. E. Felt and T. C. Post.

### NEW JERSEY MACHINE CORP.

**SPACE 122**  
Willow Ave., Hoboken, N. J.

### THE OHIO BOXBOARD CO.

**SPACE 303**  
Rittman, O.

**WHAT PRODUCTS:** Folding cartons, corrugated containers.  
**WHO WILL MEET YOU:** H. G. Hall, C. F. Barlow, Chicago Sales; T. J. Charlesworth, Pittsburgh sales; R. J. Heames, L. M. Oatley, Cleveland sales; L. E. Swope, Southern sales; S. F. Allison, C. C. Carruthers, Akron sales; A. B. Killeen, Toledo sales; L. C. Barr, New York sales; J. N. Andrews, General Sales Manager; M. R. Shofer, Container Sales Manager; R. E. Smith, Carton Sales Manager; J. C. Morris, Research and Development Manager; P. B. Boyle, container sales correspondent; R. B. Worthington, container sales service; H. N. Kime, carton sales correspondent; L. A. Gorham, carton sales service; E. J. Brophy, Board sales manager; B. D. Miller, board sales correspondent; W. R. Brooks and J. I. Miller, Research and Development.

### OLIVER MACHINERY CO.

**SPACE 404-A**  
1025 Clancy Ave., N.E., Grand Rapids, Mich.  
**WHAT PRODUCTS:** Heat-seal automatic labeling machine, roll-type thermoplastic labels for top of package labeling.  
**WHO WILL MEET YOU:** H. B. Tuthill, Vice President; Ralph C. Russell, Sales Manager; Fay Caldwell, Chief Designer; Arthur Blake, Eastern Sales Manager; J. M. Duthie, Ohio District Manager.

### OWENS-ILLINOIS GLASS CO.

**SPACES 208-209**  
Toledo, O.



E. F. Bertrand

**WHAT PRODUCTS:** Shelfline bottles.  
**WHO WILL MEET YOU:** E. F. Bertrand, Sales Manager; Drug and Chemical Industries; A. R. Kohl, W. M. Robertson, E. A. Hildreth, S. F. Davis, R. E. Delaplane, R. E. Bradley, K. A. Hermal, and C. M. Dooley.

(Turn to page 52)

# Good Layout and Mobility . . . .

## From Filling to Shipping

*Filling one-gallon paint cans on automatic machines . . . labeling and packing operations . . . efficient layout of order-filling area for quick assembly . . . semi-live skid system for mobility . . . specially designed castered dollies for handling paint can lids.*

### PACKAGING MECHANICS SECTION

**A**NOTHER article in this issue tells you about the revolutionary layout of Pittsburgh Plate Glass Company's Springdale Plant, Paint Division. This two-story structure, which started operations only six months ago, represents a break with the traditional paint manufacturing plant building customarily using four processing floors.

This description traces the material flow through the filling-packaging line for one-gallon cans of paint at this plant. Cans of this size were chosen because the largest percentage of the product is packed in them. The details given are also typical of the other sizes of cans filled for the retail trade.

The gravity pipe line from the straining department (on the second floor) supplies the hopper at the start of the filling line. An automatic valve at the end of this line controls the flow of paint for the automatic filling machine, which is of the piston type. If the paint in the supply hopper should

rise above a predetermined level, the automatic valve shuts off the flow until the level is reduced to the permissible level.

Empty cans are supplied to the filling machine operator in original packages, which are spotted within his reach. Special interest attaches to the preparation of the lids, which are coded. This phase of the operation will be discussed in detail later. The filling machine has a capacity up to 1200 gallons per hour (when only this size is run). The same machine is also used for pints and quarts, requiring the usual adjustments for the cans of different sizes. The change-over from one size to another takes about six or seven minutes.

As can be seen from some of the photos, the empty cans are carried by a table-top conveyor under the filler, and are thence positioned successively under (a) the lid drop and (b) the can closer or crimper.

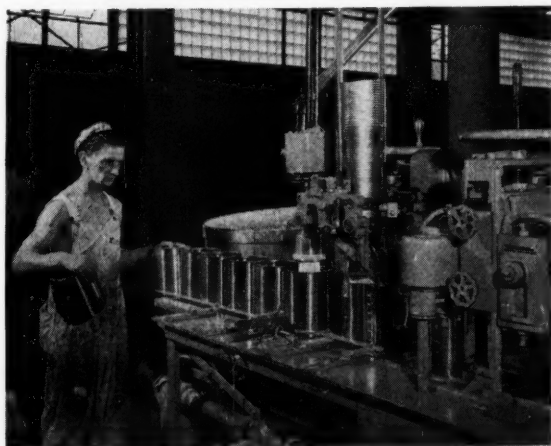
After crimping, the full cans pass through a twist, which turns them from an upright to a horizontal

position for labeling. The full cans first pass over a hot glue pick-up roller, which puts four spots of glue on the container in one revolution. The can then passes over a stack of labels, one of which is thus wrapped around the rolling unit. At this point the label is wrapped fairly smoothly around the can, except for a half inch of the lap end. This is attached by the lap end glue machine, next in line, a spring cable carrying the glue and running laterally across the path of the can. The free lap end of the label is thus glued, and the advancing can then passes under a brush. The latter smooths the label all around the revolving can.

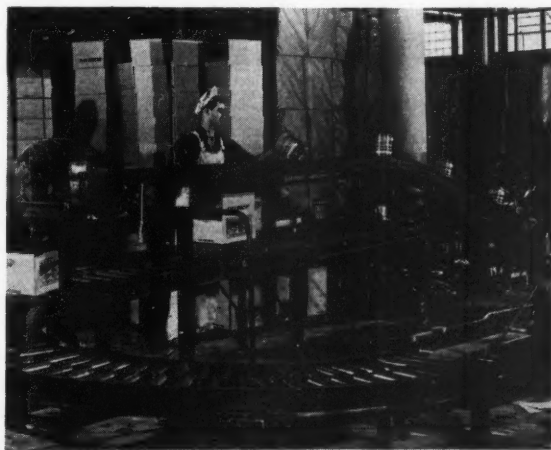
Another detail of labeling should be mentioned. A piece of sponge rubber, about 18 inches long, is on the bed of the machine, at a point just after the flap gluing station and just ahead of the discharge point from the machine. If the surface of the bed were hard, the cans would be apt to spin, which is prevented by the rubber pad.

The labelled units are carried

**TABLE-TOP CONVEYOR** carries cans to filling, the lid drop, then to crimper. A fast job.



**PACKING STATION.** Note that roller conveyor line provides convenient disposal for cases.



## PACKAGING MECHANICS SECTION

through a second twist, which returns them to an upright position. They are thus delivered to an inclined nine-inch belt, at whose end point the packing station is located. Set-up cartons are stored within reach of the packing operator. The conveyor belt delivers the full and labelled cans at approximately chest height, as shown. The packing bench is on a level that is 20 inches lower. The cans are thus picked off the higher level and conveniently dropped into the shipping container on the lower level.

The subsequent sealing and disposal of the full cases takes place on a continuous conveyor line, which terminates in the basement storage-shipping area. The packing bench is paralleled by a gravity roller line. The operator gives the full cases a slight push onto this line, which carries the units around a 180-degree turn, as shown. Im-

mediately beyond this point, the containers enter the automatic sealer, which glues both the top and bottom flaps. The glued cases pass under a mechanical counter, then into the compression unit. During normal runs the cases re-



FROM COMPRESSION UNIT, chute moves full cases to storage-shipping in basement. main in it about 90 seconds. A mercury tilting switch activates the compression unit, and is tripped

by cases emerging from gluer.

After a glued shipping container is delivered into the unit, the



SEMI-LIVE SKIDS provide mobile, economical handling system in basement for all uses.

switch returns to normal position, cutting off the power. The case thus remains stationary between the compression belts. The next case advancing from the gluing machine trips the switch and the belts advance approximately the length of a case (actually a few inches more to avoid friction between cases). In this manner each

# Now! SEAL TALL, NARROW CASES AUTOMATICALLY!



Take the "Hand" out of Handling

## A-B-C AUTOMATIC SIDE SEALER

Sealing tall and narrow "difficult" cases can now be done faster, more economically with the new A-B-C Side Sealer. It's all automatic. No operators required. Cases are sealed directly from production line at speeds up to 60 cases per minute. Stepless adjustments for wide range of case sizes is done electrically in a matter of seconds. This A-B-C unit can seal either or both ends . . . regular or full overlap flaps. A-B-C specializes in building case sealing machinery. Let an A-B-C specialist help solve your sealing problems. Write for new folder containing complete details. A-B-C PACKAGING MACHINE CORP., Dept. F-5, Moberly, Missouri.

## FEATURES

- ✓ Built-in power permits finger tip control.
- ✓ Simple, sturdy construction for minimum down time . . . low maintenance cost.
- ✓ Automatically adjustable to wide range of case sizes.
- ✓ Glue applicator and compression unit supported at 4 points for even pressure.
- ✓ All main drives ball bearing — geared head motors.

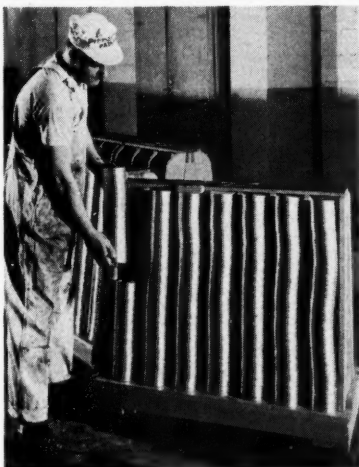
# A-B-C

PACKAGING MACHINE CORP.  
MOBERLY, MISSOURI

OTHER A-B-C PRODUCTS  
Automatic Top and Bottom Case Sealer  
• Semi-Automatic Bottom Case Sealer •  
Hand Gluer • Glass Container Case Packer

full unit is advanced the length of a case at the same time, and thus kept for the necessary period under compression for the proper setting of the glue.

From the discharge point of the compression unit, the completed shipping containers are delivered to a friction chute, which leads to the storage-shipping room at basement level. A gravity roller line extends from the end of the chute



**CASTERED LID DOLLIES**, sectioned according to can sizes, solved big handling problem.

for about 20 feet, paralleling storage sections. Incidentally, this disposal method is similar for the other sizes of cans packed at the Springdale plant. That is, the cases drop through chutes onto conveyor lines in the basement. Where a certain type of paint has a longer distance to travel, the conveyor line will usually be a powered belt.

The basement has a standard 10-foot ceiling height, and semi-live skids are used throughout for moving the loads between work stations. (Due to the present heavy backlog of orders, by far the larger part of the daily production bypasses storage, moving directly into the shipping area or into outbound freight cars or highway vehicles.)

The semi-live skids are 24 inches wide and 60 inches long. The width is desirable for stacking "two cases across"; they are usually piled four high. When fully equipped, the basement area will use more than 250 of these semi-live skids. Approximately one two-wheel jack handle will be used for every 25

skids in operation. Plant Foreman W. L. Cowdrey pointed out that skids, in addition to "keeping the stock rolling," are also cutting down considerably on handling. Since skid loads of stock are run directly from the delivering conveyor lines to the shipping area, no rehandling is necessary when the goods are to be loaded.

The basement floor layout is designed to show maximum stock requirements for each type of stock carried. Code numbers are painted

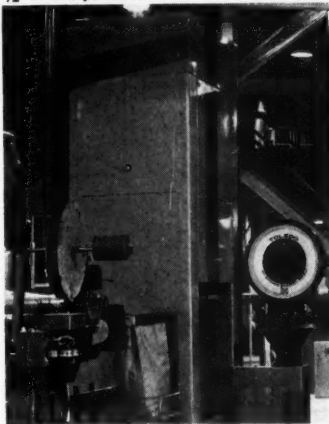
## PACKAGING MECHANICS SECTION

on the floor before each storage area which is marked off with painted stripes, and each section is laid out in the same sequence used on the order forms. Thus the job is made as simple as possible for the order assemblers. The code numbers show the color and type of paint. While the width of each

(Turn to page 65)

**SPEEDILY  
WEIGH AND BAG  
POWDERED AND GRANULAR  
MATERIALS WITH THIS  
INGENIOUS MACHINE!**

All mechanism enclosed in dust proof cabinet. Unit is connected with exhaust and recovery system for collection of excess dust and product. No waste. Clean operation. Capacity from 25 to 100 lb. bags weighed to an accuracy of 1/2 of one per cent.



Product is fed continuously from storage bin. Weighing is automatic. Each batch is discharged into bag suspended on filling spout. Filled bags then conveyed to sewing machine for closure. Speed of operation 4 to 10 bags per minute. Numerous machines in use handling chemicals, resins, insecticides, etc.

Write for information on machine described above and our facilities for special engineering work of all types.

**AUTO-PACK COMPANY**  
AUTOMATIC PACKAGING and MATERIAL HANDLING  
450 FOURTH AVE • PITTSBURGH 19, PA.

# Jar Packing on an Adjustable Line

CANOVA FOODS, INC., Memphis, Tenn., is one of the South's largest producers of food products. Included in the list of items manufactured are coffee, mustard, mayonnaise, pudding, peanut butter, and others. Some of these are perishable. In this group are such condiments as salad dressing, mayonnaise, and pickle relish. Stocks of these items are controlled on grocers' shelves on a 90-day limit, and hence it is imperative that they be manufactured and distributed in a minimum of time.

This requires production schedules to be set for high-volume short runs, with change-overs every four hours on the average. Change-overs

*High-volume mayonnaise filling with automatic equipment . . . adjustable conveyor guides accommodate four sizes of jars . . . continuous conveyor line contributes to speedy operation and uniform product under sanitary conditions.*

are of two general types. 1. The size of the commodity remains the same, but the package size is changed—for example, from a half pint to a pint jar. 2. A change of product with the same size jar being retained. A change from mayonnaise to a salad dressing would be an example.

A change in the size of jars requires a two-hour set-up time, and is consequently avoided whenever possible. A product change-over can be made instantaneously by

switching from one pre-mixing tank to another and changing the labels in the labeling machine. This can be done only when foods of the same base are to be run consecutively. Oil base foods may follow oil base foods, but not pickle base items. The change-over from one base food to another requires a steam cleaning of the entire line. In all, 16 change-over combinations are possible, and these are made each week.

The present description of the filling operation of one-pint mayonnaise jars is typical of the high-volume methods engineered into this filling line for all products.

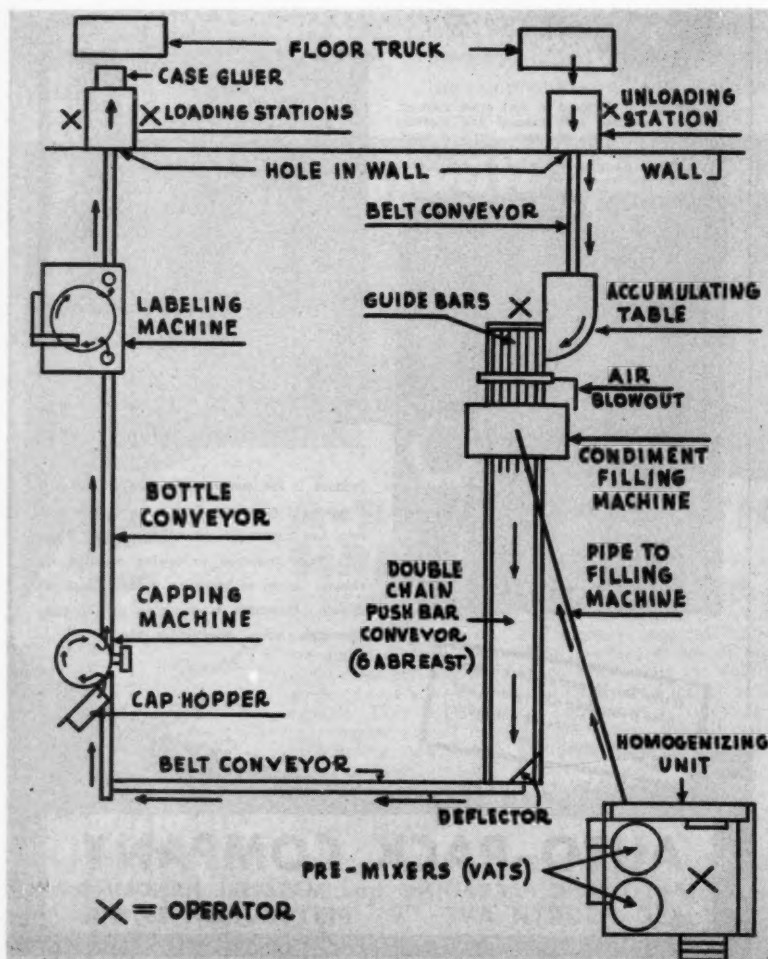
## Sending Empty Glass To Filling

Because it is possible to bring in a certain amount of dust with the cases in which the empty jars are received, the empty jar unloading operation is located in a separate room which adjoins the filling department. Jars are received in unsealed corrugated containers, 24 jars to the unit. After unloading, the dual-purpose cartons are used for shipping the full jars.

A rubber-covered table at the unloading station is used for feeding the units to the empty jar conveyor, as shown in the accompanying flow diagram. The rubber top serves as a "cushion" for the glass as the 24 jars are emptied from the cases with one deft motion. Incidentally, the jars are loaded upside down by the glass manufacturer so that they will be right side up and ready for filling when they are unloaded on the table.

Adjacent to the table is an opening in the wall through which an operator feeds the empties to a narrow belt conveyor. All convey-

FLOW DIAGRAM shows "U" layout, in which filled jars of mayonnaise return near origin.



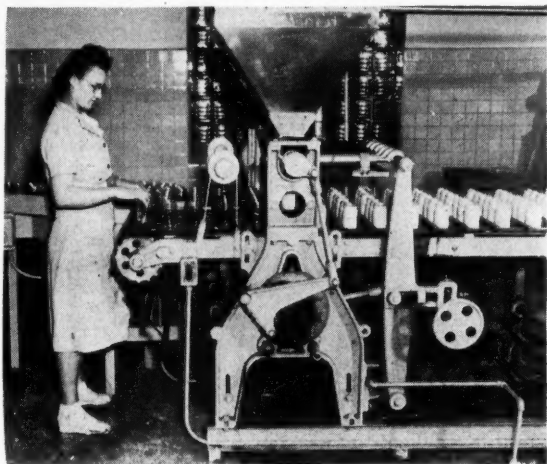
ors used in this operation have guides on each side which are adjustable to the widths of the four sizes of jars that are run over this line. The immaculately clean packaging room glistens with its tiled walls, glazed floors, and stainless steel equipment. Cleanliness and easy maintenance are a prime fac-

tor in any food products plant.

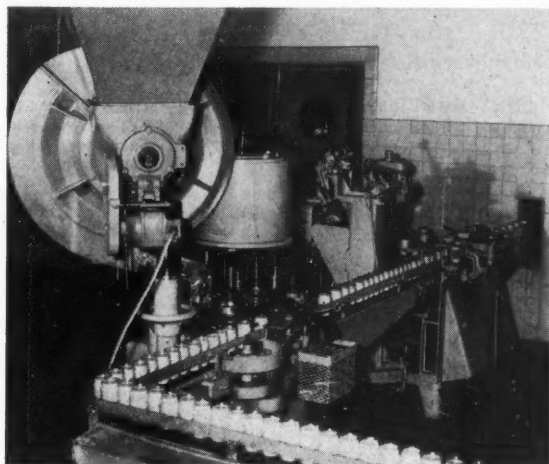
The traveling jars are discharged on an accumulating table next to the filling machine, as shown. Seven adjustable steel guides, forming six runways, are bolted to the bed of the machine. The operator places one jar in each runway. A push bar conveyor is incorporated

into the bed of the machine and advances the jars through the next operations—air blowing and filling.

Six abreast, the jars advance to  
(Turn to page 42)



CAPPING AND LABELING MACHINES, with part of "U"-shaped layout. Jars travel to packing.



FILLING SIX JARS AT A TIME. Note feed pipe going to hopper. See description in article.

**LARGE or SMALL...**  
*There is a Homer*  
**"PERMANENT" MAGNETIC**  
**SEPARATOR TO SUIT YOUR JOB!**

Tramp iron can and does cost a lot of Money! It causes Fires and Explosions . . . it Damages or Destroys Valuable Machinery.

Eliminate your "TRAMP METAL" before or during processing with HOMER "non-electric", Permanent Plate Type or Pulley Magnetic Separators. HOMERS are PERMANENT . . . they require no wires or electrical accessories and are "self-insulating" when mounted on conductive material. Write for bulletins today.

PRODUCERS OF MAGNETIC SEPARATOR EQUIPMENT SINCE 1923

**The HOMER Manufacturing Co., Inc.**  
DEPT. 1-13  
LIMA, OHIO  
PERMANENT MAGNETIC SEPARATORS — PLATE TYPES AND PULLEYS

**NO OTHER DUPLICATOR LIKE IT!**  
*Quick! Easy to use! Prints on Anything!*



ANYONE CAN OPERATE THE NO. 3 'ROCKER-TYPE' MULTISTAMP DUPLICATOR

**PRINTS ON SHIPPING TAGS, LABELS, POSTCARDS, BOXES, CARTONS, ETC.**

Saves time, labor, money in your packing and shipping department—because MULTISTAMP does addressing and marking jobs that no other duplicator can do. Completely portable—use it anywhere. No type to set—MULTISTAMP is non-mechanical. Just type, write or draw on the stencil—snap it on—print.

**No. 3 MULTISTAMP OUTFIT**

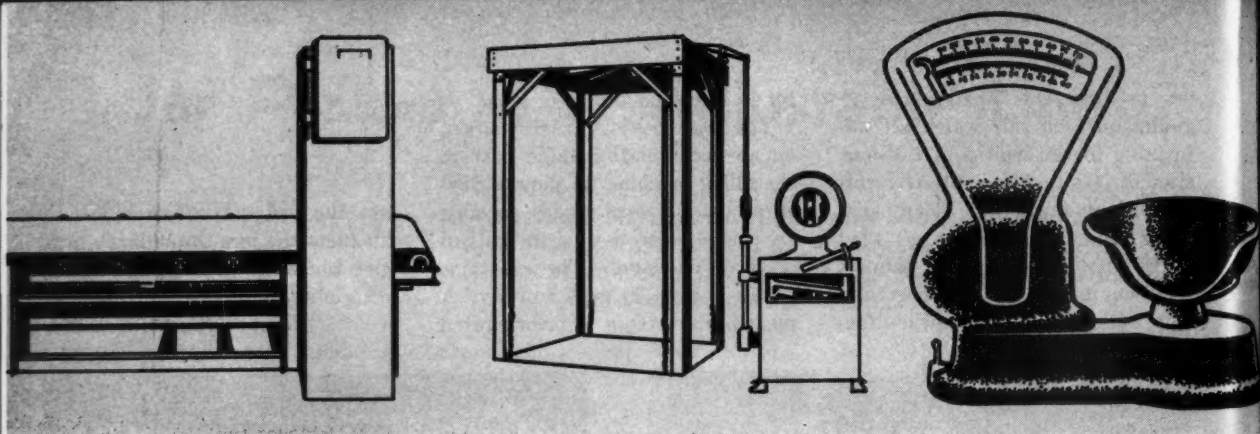
Ideal for any small printing job. Prints up to 19 lines of type 5 1/4" wide. Complete with all supplies and case. Weight 4 lbs. F.O.B. Factory.

Larger and Smaller Outfits Also Available

**MULTISTAMP**  
STENCIL DUPLICATOR

MANUFACTURED ONLY BY THE MULTISTAMP CO., INC., NORFOLK, VIRGINIA





**CONTINUOUS WEIGHING**, proportioning and controlling of dry materials traveling on conveyor belts is possible with special type scales.

**SUSPENDED SCALES** are designed for use in dairies and other locations where spilled liquids may damage weighing mechanisms built into floors.

**COMPUTING WEIGHTS** of grain samples, weight per bushel and percentage of dockage is performed rapidly with inspection scales.

## HOW AMERICAN INDUSTRY USES SCALES IN MATERIAL HANDLING

Many industrial functions require the measuring of quantities of material by weight. This calls for accuracy and control, which are provided by weighing scales. The scales on the receiving and shipping docks of a plant are familiar as standard equipment, but between these two points scales are in use which represent thousands of styles and combinations designed for every conceivable fabricating and processing use. Properly integrated in material flow lines, scales are important production aids. They provide weighing, counting and testing control, as well as printed records for accounting, payroll and other departments. Here, for your information, is a typical selection of styles designed for many different applications.

**T**HE integration of scales into processing lines eliminates time losses and re-handling. By weighing in transit, physical lifting is eliminated. Material flow is expedited, efficiency is increased, production tasks are eased, production count is maintained, spoilage reduced, product quality is con-

trolled, good housekeeping promoted and disputes do not arise over quantities received or shipped.

Scales are valuable to the accounting department. Material control by weight is increasing in

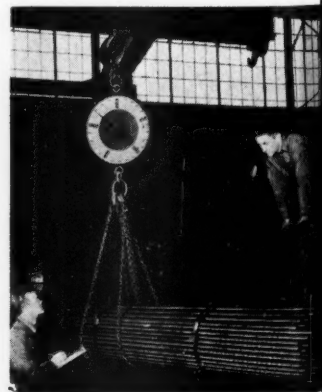
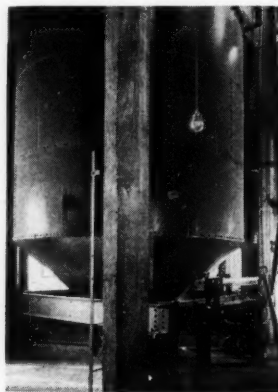
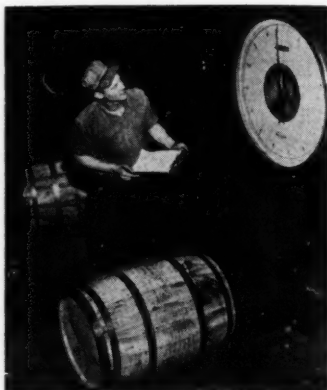
practice, a recent trend which further highlights their importance in industry.

A wide variety of scale designs can be used for weighing materials under practically any load condi-

**HOPPER CONTENTS** are measured by scales with levers installed around outside of container or tank in the case of liquids.

**CRANE LIFTS** are weighed in transit by means of scales installed between hook and load, saving production time.

**BUILT-IN FLOOR** scales permit rapid weighing because products or containers can be rolled directly on platform, eliminating lifting.



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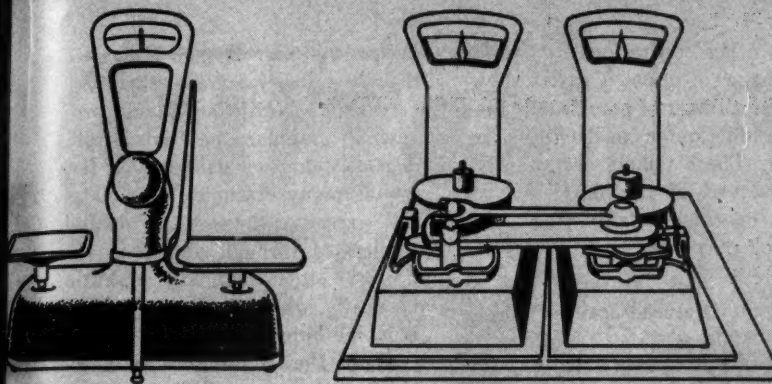
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**NEW WEIGHT** packing scale is designed to show over or under weight of packages balanced against sample or standard unit of measure.

**DOUBLE BALANCING** scales are used for checking trueness of both ends of aviation or automotive connecting rods and other parts.

tions. Some materials are comparatively easy to handle mechanically. These are handled satisfactorily on standard scales. Other materials, because of their size, temperature or nature, require specially designed models. The type selected depends on the requirements for accurate automatic, semi-automatic, or manual weighing.

Since almost every installation presents a different problem, manufacturers' engineers will study any handling situation and recommend the type of scale unit that will meet the requirement.

Industrial scales include truck, railroad, monorail, portable platform, floor, bench, roller conveyor, enclosed conveyor, batching, hopper, tank, counting, packaging and postal types. For visual readings, they are practically all available with beam, dial, fan, spot, tape or pointer weight indicators. Another development is a special mech-

anism which prints a record of each weighing. Manufacturers of scales offer several models of almost every type.

#### Built-in Scales

Floor scales, with platforms level with the plant floor, are available in many types and sizes. They range from a platform for weighing a single barrel to an entire truck weighing up to 50 tons. This range provides the proper equipment for accurate weighing of materials moved between departments or plants.

Other scales of this general type are built into railroad spurs to check carloads weighing up to 200 tons. Similar scales in warehouses, factories and assembly plants are used for all materials controlled or purchased by weight. Sizes of these scales are governed by the sizes of loads.

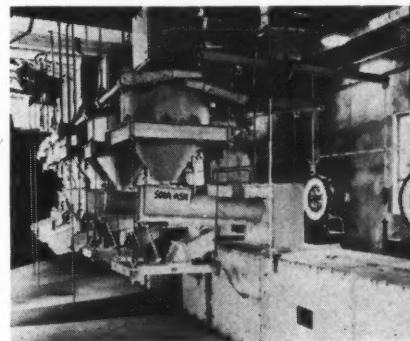
**ROLLER CONVEYOR** section installed on scale platform permits direct weighing of packages without lifting by personnel.

**MONORAIL SCALES** provide automatic weighing in transit. Levers are connected to "live rail" in overhead trackage.

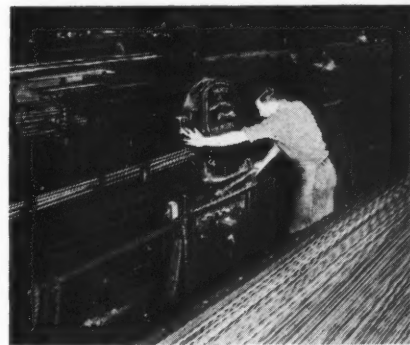
Inter-department floor scales are likewise furnished in many types and capacities, depending on the maximum loads, the service desired and type of materials involved. The platform size is governed by the character of the weighing—that is, whether the skid, trailer or floor truck is to be included in the gross weight.

Built-in scales, with mechanisms installed in recessed floor areas, can be used in virtually any kind of

**AUTOMATIC HOPPER** scales with electric cutoffs feed ingredients for batching onto conveyor belt in many industries.



**PRINTWEIGH** device makes a permanent record of loads passing over roller conveyor section on platform of scales.



**PORTABLE BATCHING** unit includes scales for weighing load and dump-bucket for unloading material into furnaces or other equipment.

"dry" manufacturing plant such as steel mills, foundries, bakeries, packaging, cereal mills, paper mills and many others.

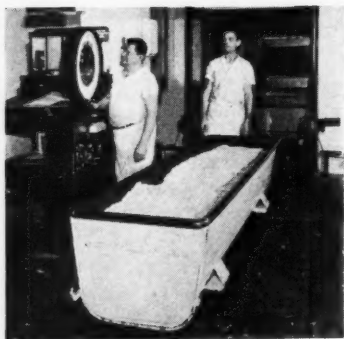
In dairies, meat packing plants, chemical laboratories, refineries, etc., where frequent scrubbing of floors and spillage of liquids are encountered, floor level scales with suspended mechanisms are recommended. This type is equipped with rods, chains or cables connecting the four corners of the floor-level platform with the weighing levers installed above the working level. This type of installation avoids inaccuracies that are caused by corrosion or water damage to the weighing mechanism.

Since provisions for floor scales are usually made when buildings are planned, construction engineers should pay particular attention to their locations in relation to the proposed flow of production. By locating the scales at strategic spots between departments or aisle intersections, a great deal of truck travel and lost time can be eliminated.

Depending on the size and type of operation, records of production are maintained in various ways. In some plants, weighings are supervised by a weigh-master. In cer-

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**PRODUCTION CONTROL BY WEIGHT** is made possible by floor scales installed outside the curing room at Jacob Laub Baking Co., Cleveland. Caster-equipped vats of dough pass over the scales on the way to processing



and baking departments. Material and production control records are maintained at the stand shown behind the scale. The scale is located directly in the aisle at this strategic point and saves time which would otherwise be required in moving the vats to other sections of the building for weighing.

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tain other operations, a print-weight scale prints a ticket showing the number of pounds delivered to production or packaging operators. These tickets are collected at the end of the shift, showing each operator's daily output for payroll purposes.

### Overhead Scales

Efficient handling calls for overhead movement of many types of materials—bundles of steel sheets, animal carcasses—as examples. To avoid the necessity for rehandling such material from hoists to floor scales, floating sections for weighing are built into overhead track-age.

Any material handled on a monorail system can thus be weighed in transit by a single connection of track section to a standard scale unit. The track section, long enough to hold trolleys or the carrier, is inserted in the track system and attached to the scales unit. Loads travel over the section in original containers and are weighed by manual or automatic operation.

Visible or concealed records can be kept at local or remote points. Counting and batching can also be accomplished with special dial faces to meet different requirements. For handling limited loads, simple portable scales can be mounted on trolleys to accomplish off-the-floor weighing.

Another method of weighing in overhead transit is the application of scales to bridge cranes, hoists, or other hook or grab lifting devices. Installed between the hook and load, the scales weigh the load as soon as it is lifted off the floor. This makes it unnecessary to move heavy castings or forgings to fixed scales and back to the job.

### Hopper and Tank Scales

Another method of off-the-floor and in-transit weighing is effected by hopper and tank scales. Levers of these scales are designed for installation around the sides of the

hopper or tank. Hopper scales are usually used in grain elevators, cereal mills, and other plants processing granular materials. Salt, sugar, and chemicals are a few among many examples. The material is received through the top and discharged through a trap in the bottom, either manually or automatically, when the desired weight is in the hopper.

With the trend toward automatic batch control, as in glass plants, several hopper scales can be interlocked with a central control panel for automatic cut-off of each ingredient at the correct weight and sequence. Graphic recorders or ticket printers can be installed for permanent records.

Tank scales are in popular use in milk receiving stations, breweries, distilleries, denaturing and rectifying plants, oil and gasoline refineries, chemical and many other liquid handling operations. As in hopper installations, graphic or ticket records can be maintained of the weighings.

### Conveyor Scales (Closed Type)

Industries using warm, pulverized or dusting materials have available another type of weighing-in-transit equipment. This is a closed-type conveyor unit. Typical installations are in cement plants where the devices are used for automatically weighing, proportioning and feeding ingredients to the mills. The equipment functions, in general, by receiving material on its weighing conveyor from a supply source. When a preset quantity has been fed on the conveyor, the supply is stopped and the weighed charge is run off the end of the conveyor. After a certain amount has been discharged, the supply feed opens and a new charge is admitted, thus providing correct weights in continuous flow operations.

Another type of closed conveyor providing continuous weighing involves synchronization between the speed of the belt and operation of scales.

(Turn to page 40)

# CUT



**MARSH STENCIL MACHINE**

"Cut our shipping room costs \$600 a year," claim users of Marsh Stencil Machines, Brushes, Inks! WPB, railroads, truckers recommend stenciling! Easy to use, legible, permanent. Three sizes to meet Gov't Spec., 1", 3/4", 1/2". For sample stencil, shippers' handbook and prices, pin this to business letterhead, with your name.

**MARSH STENCIL MACHINE CO.**  
67 Marsh Building  
Belleville, Ill., U. S. A.



## MARSH STENCIL MARKING

### "Snakes" of SPONGE RUBBER

Sponge rubber "snakes" created a lively materials-handling problem on the production line of this rubber manufacturer. Lewis Stacking Boxes cured this "Medusalike" headache by providing light weight, durable containers of uniform size for this job, as well as other small rubber parts-handling in this plant. Cut production and storage costs NOW... send for details.

**G. B. LEWIS CO.**  
604 Mont. St.  
Watertown, Wisconsin

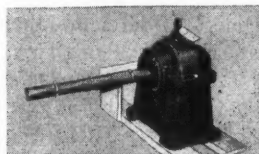


**LEWIS**  
INDUSTRIAL CONTAINERS

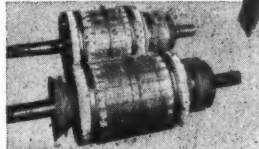
SKID BOXES  
STACKING BOXES  
SHIPPING BOXES  
BOX TRUCKS

## STEELBINDER

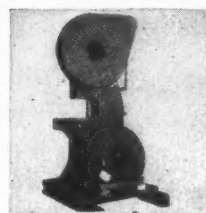
...cured these shipping room headaches!



• Covers came off these shafts till the Steelbinder "tighter tie" was applied — now the shafts stay covered.



• Strapping once slipped off the round surfaces of these armatures, but no more—the Steelbinder puts a slip-proof tie on any round surface.



• Costly Cartons used to wrap these saw blades — now look how simply and cheaply Steelbinder ties them.

• Crates cracked up when these heavy stamping presses were en route and damage claims were heavy. Now Steelbinder ties them tight without crates — saves wood as well as trouble.

THE list of shipping room and maintenance strapping troubles that the Steelbinder Tool has overcome is long and varied. If you have a "Toughie" to tie on your hands, an A. J. Gerrard strapping specialist can and will help you find a practical money-saving solution. Look in your classified phone directory now.

*Mail this coupon!*

Steel  
Binder  
Tool

Send free . . .

- ☐ Send free, Steelbinder and Bulkholder folders
- ☐ Our packing problem is (name of "problem" product)

☐ Can we use your tying method in maintenance or production of (name of product) \_\_\_\_\_?

Company \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

Attention of \_\_\_\_\_

### The Versatile STEELBINDER...

The only strapping tool that ties any size or shape object with four sizes of strap. It does the whole job — you don't need a special tool.

STEEL  
STRAPPING

**A.J. Gerrard & Co.**

221-A N. LASALLE ST., CHICAGO 1, ILL.

# ON THE



# PALLET

## NEWS · VIEWS · TRENDS

**C. H. FLEISCHER**, Time Study Engineer, Thompson Products, Euclid, Ohio, out-did more than 2000 other visitors at the Materials Handling Exposition in the 1948 Gould "Thirty" Contest, and was awarded the Philco 1256 Radio-Phonograph at ceremonies held the last day of the show. M. W. Heinritz, vice-president of Gould, presented the prize and pointed out that more than 2000 estimates of the number of feet of glass tape insulation in a Gould "Thirty" 36 cell 31 AMH-P industrial truck battery had been entered in the contest by visitors.

Fleischer estimated within 66 feet of the correct answer. He calculated 149,750 feet, while there actually are 149,694.75 feet of glass tape insulation in this Gould "Thirty" industrial truck battery.

**TO AVOID** an unfair scramble for space in the 1949 Materials Handling Exposition, the rule of first-come first-served, employed for the first two expositions, must be abandoned in favor of a more equitable procedure. The Exposition Management has, therefore, established the following basis for making space available in the show.

Announcement and floor plans of the exposition will be mailed to exhibitors shortly after March 1. Accompanying the floor plan, there will be an application form, on which exhibitors will be asked to express their booth preferences. They will have until April 1 to consider the locations. On April 6, a lottery procedure will be employed to determine space assignments. Company names will be placed in a glass bowl, mixed thoroughly, and then names will be drawn, one at a time. The first company name drawn from the bowl will be assigned its first booth choice. The drawing will then continue, with the first available choice specified by the company being assigned to it as its name is drawn from the bowl. In event all the company's choices, as listed on its application form, have been assigned by the time its name is drawn from the bowl, the Exposition Management will assign a booth that it believes to be closest to those indicated on the application form. Any company, of course, has the right to reject any such assignment. The drawing will take place in three stages:

First, for companies that have exhibited in both the first and second expositions and whose space requirements are 3,000 sq. ft. or more.

Second, for companies that exhibited in both the first and second shows and whose requirements are for less than 3,000 sq. ft. of exhibit space.

Third, for companies that have exhibited only in the

first or second exposition.

The drawing was scheduled to take place in the Commodore Hotel (Parlor A), New York, at 10 a. m., Tuesday, April 6.

The procedure outlined has been used in a number of other shows, and all exhibitors have regarded it as entirely fair.

**MORE** than 300 members and their families attended the second annual meeting of The Rapids-Standard Co., Inc. profit sharing trust held January 30 in Grand Rapids, Michigan, where the company manufactures material handling equipment.

The Rapids-Standard profit-sharing trust plan, acclaimed nationally as an outstanding forward stride in industrial human relations, provides annuities and insurance policies for members who have been with the company three years or more. Up to 25% of yearly company profits are set aside for the trust fund, and one-third of this amount is used to purchase life insurance policies for participating members.

**ALL** the papers delivered at the technical sessions of the second National Material Handling Exposition, Cleveland, January 12-16, 1948, will be published in a single volume. The charge per volume will be \$1. Orders should be sent to: Clapp & Poliak, Inc., National Material Handling Exposition, Empire State Building, New York 1, N. Y.

**THE ELECTRIC STORAGE BATTERY COMPANY** recently honored their 1,000th employee to complete 25 years of service with Exide. President R. C. Norberg said there are 893 living members of the Exide Quarter Century Club, 112 of whom are pensioners and 781 of whom are active employees. Nearly 20 per cent of the company's 4,000 employees have been with Exide 25 years or more. More than one-half the workers have more than 10 years service to their credit.

**NEW YORK CITY** is one of a relatively few areas in the country having a modern, fully-equipped service shop devoted exclusively to the maintenance and repair of fork lift trucks, industrial tractors and fork lift truck accessories when Towmotor Corporation, Cleveland, Ohio, announced the opening of its new service and repair shop at 111-113 LeRoy Street,

**L. J. CLARKE**, associated for the past 14 years with the Darnell Corporation, Ltd., as division manager of the Chicago office, died recently at his home in Chicago. C. B. Johnson, who has served as

(Continued on page 68)

# Saves 750 lbs. dunnage per car

## Water heater company cuts freight costs, reduces damage claims, saves time and labor with Acme Steelstrap

The extra expense of material and labor for bracing a car with heavy, costly lumber is a cost of distribution which can be reduced. Also, that hidden cost, "claims for damages," can be eliminated.

The Fowler Manufacturing Co. of Oregon asked Acme shipping specialists if Acme Unit-Load Band might be an answer to their water heater shipping problems. It was. This method saves 750 lbs. of lumber dunnage per carload and has proved to be a safer method of bracing cars.

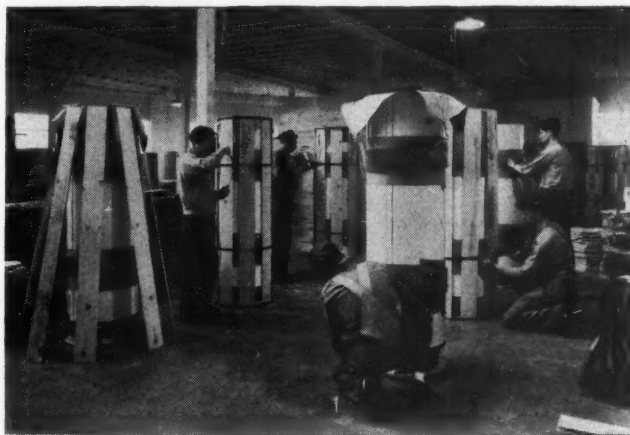
While there, the Acme experts also suggested an improved design for individual heater packages. This resulted in another 25% savings.

You are welcome to call in an Acme shipping specialist to consult with your organization on any shipping problem without obligation.

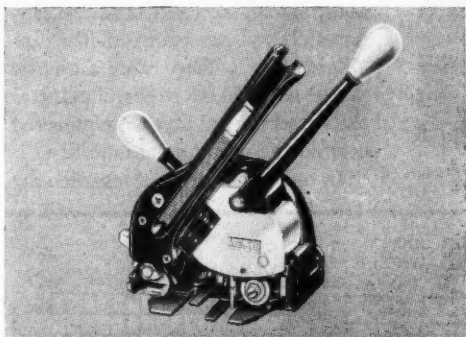
Write or send for booklet containing actual case histories of substantial savings made by Acme shipping specialists.



Acme Unit-Load Band practically eliminated freight damage claims, reduced labor costs, and saved 750 lbs. of lumber dunnage per carload.



A shipping room production line is building more efficient packages with Acme Steelstrap. This saves 25% on each water heater package.



More savings ahead for Acme Steelstrap users—No. 3 Steelstrapper, the lightest tool made, is now available. Magazine holds 100 seals. Tensions, seals, and cuts the strap in one operation. Small base requires only 5-inch strapping surface. Two levers working in opposite directions make for better balance and easier handling.

## Acme Steelstrap

NEW YORK 17 ATLANTA CHICAGO 8 LOS ANGELES 11

Acme Steel Company, Dept. F-48  
2838 Archer Avenue  
Chicago 8, Illinois

Gentlemen:

Please send me a copy of your case history booklet,  
"SAVINGS IN SHIPPING."

Name .....

Company .....

Address .....

City ..... State .....



ACME STEEL CO.  
CHICAGO

*In this revolutionary paint plant*

# PORTABILITY ELIMINATES TWO FLOORS

**FORK - TRUCK - PALLET  
METHOD, ELEVATORS,  
PLATFORM TRUCKS, SEMI-  
LIVE SKIDS, HAND PALLET  
AND BARREL.**

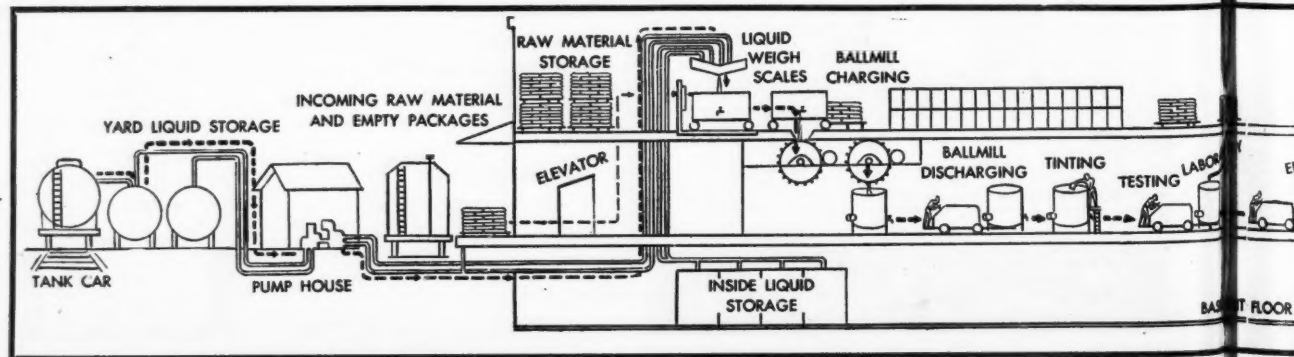
*Probably the only U. S. building designed as a paint plant, it uses only two processing floors instead of the traditional four stories. High ceilings, two strategically located elevators and portable processing equipment are among the tools that make this innovation possible. Palletization of raw materials, planned layout and production practices and adroit elevator use are other features of the unique Springdale Plant.*

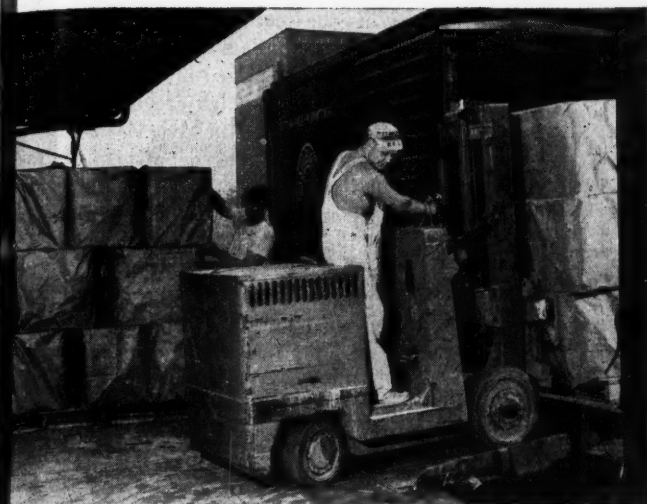


REMOTE SWITCH enables fork truck operator to open elevator door on the run.

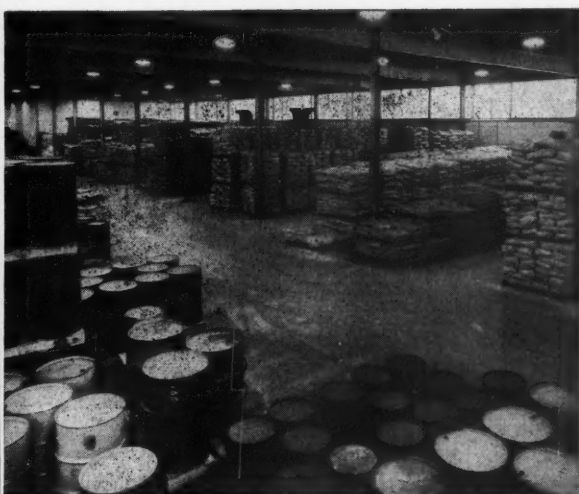
THE Pittsburgh Plate Glass Company's "paint plant of tomorrow", a two-story (and basement) structure at Springdale, Penna., represents a radical innovation in paint plant layout. Designed by the Company's Paint Division engineers to take advantage of the latest material handling techniques, the Springdale Plant uses only two processing floors, as compared with the four floors traditionally employed in this industry. The usual method is to load the raw materials into stationary equipment on the top (fourth or fifth) floor, whence the flow is by gravity into the machines spotted in line on the floors below. Part of the Springdale Plant's equipment, on the other hand, is portable instead of fixed, and by this means two processing floors are eliminated. The diagrammatic sketch on these pages illustrates the novel flow that was engineered around the principle of mobility.

In operation only six months, the





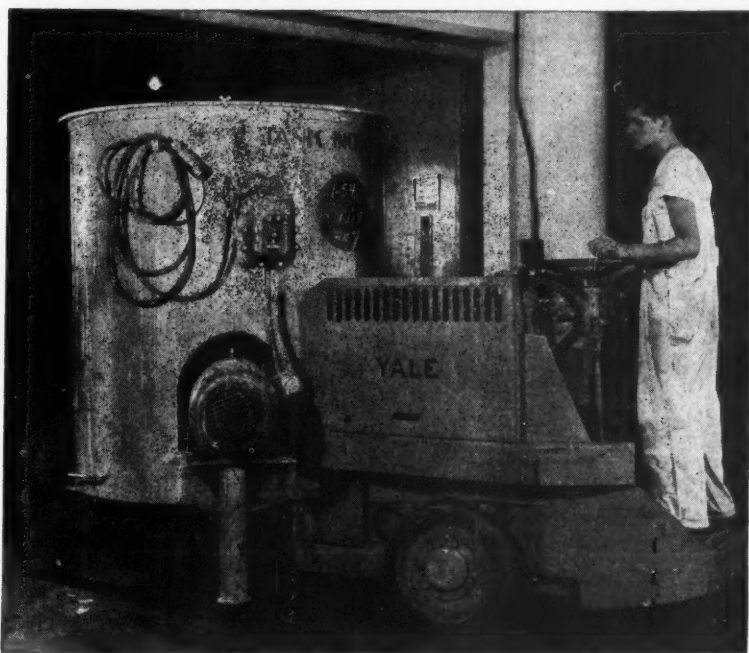
ADJUSTABLE RAMPS permit fork truck to enter rail cars during loading and unloading.



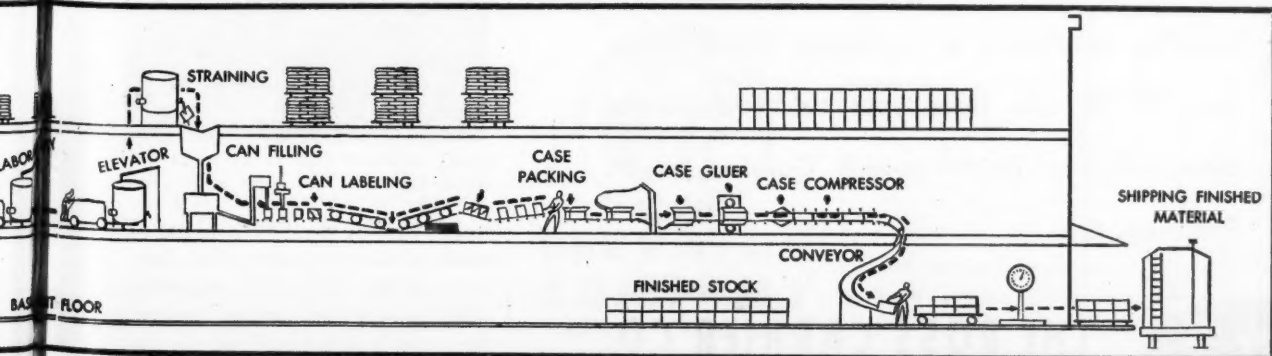
PALLETIZED bagged and barreled materials are stored for rapid order selection.

plant is erected on sloping ground and extends from north to south. This setting provides openings on the north end and west side at the first-floor level, and openings at basement level on the south end.

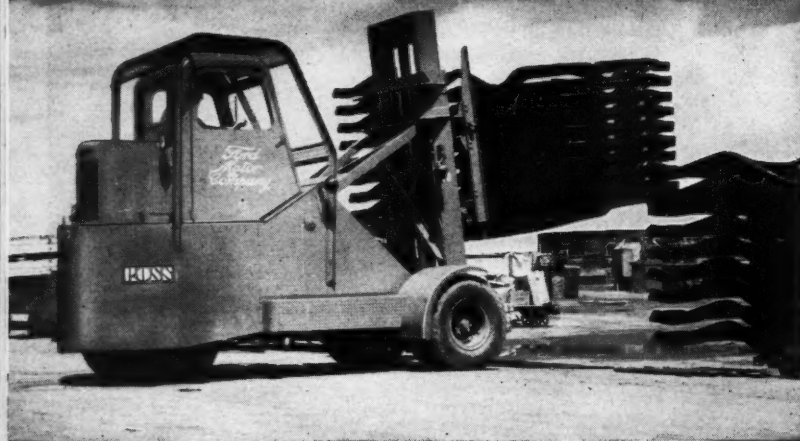
Each of the two processing floors is 121' x 342' (which is also the size of the basement). Additional space is provided on each floor by a 123' x 100' wing at the northwest end. Besides the portability of the equipment, certain building features compensate for the two "missing" processing floors. The ceilings are high, for example, with a 19-foot clearance on the second or top floor, and an 18-foot clearance on the ground floor. This high headroom permits installation of the ball and pebble mills near the ceiling above the first floor. The mills are charged through chutes from the upper floor. (This arrangement eliminates the milling



SKETCH shows the novel material flow in revolutionary two-floor paint plant. PORTABLE TANK, with built-in agitator, is moved on elevator by platform truck.



*Chosen by* **FORD**



## **ROSS** *Heavy Duty* **LIFT TRUCK**

**handles frames "by the bundle"  
at Ford's Lincoln plant.**

Here's typical ROSS performance. It's the kind that has convinced one manufacturer after another that ROSS is the lift truck they can depend upon to solve their big-load handling problems most efficiently.

Remind those responsible for your materials-handling operations to investigate ROSS Heavy Duty LIFT TRUCKS. Three types, six models. Capacities, 5,000 to 18,000 pounds. Gasoline power. Pneumatic tires.



**THE ROSS CARRIER CO.**

289 MILLER STREET, BENTON HARBOR, MICHIGAN, U.S.A.  
Direct Factory Branches and Distributors Throughout the World

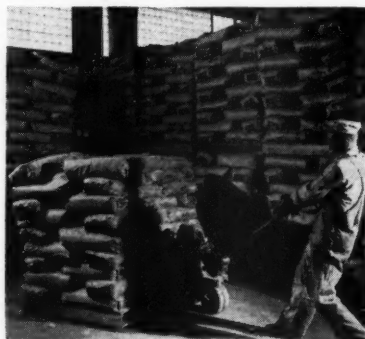
floor of the conventional paint plant.) After milling, the material-in-process is discharged into portable mixing tanks which are transported by platform truck, via elevator, to the straining department located in another portion of the second floor. (This portability eliminates the mixing floor of the conventional plant.) The layout of the basement, a storage-shipping area, is discussed in the Packaging Mechanics Section of this issue.

Following are the detailed steps of the handling procedures.

### **Receiving Layout, Vertical Movement**

A large percentage of the raw materials consists of powdered pigments in multi-wall bags. Other items are received in 30 and 55 gallon drums, as well as wooden barrels. Containers of many sizes likewise represent a sizable volume of the incoming goods handled. All these items, except certain empty containers, are transferred to the second floor storage area, which is south of the production department on the same floor.

These materials are principally received by freight car at a U-shaped covered dock on the west side of the building, on the same level with the first production floor. The double track spur extends between two wings jutting out from the west side of the main building. Six freight cars, three on each



**PALLET LOADS** of materials are moved to mixing department with hand pallet unit.

track, can be worked simultaneously on the two longitudinal platforms of the "U." (The southwest wing housing the varnish cooking operation is not considered in this

**FLOW**

description.) The shipping department, located at the south end of the basement level, is served by a second spur track of three car capacity. The truck dock for shipping and receiving is continuous with this rail platform and is located along the east side of the building. All platforms are 12 feet wide, providing ample room for powered truck operations.

In receiving, materials are palletized in the cars and moved by 3000-pound fork trucks to the elevator at the east end of the plat-



**SEMI-LIVE SKIDS** are used to assemble materials for mixing small quantities.

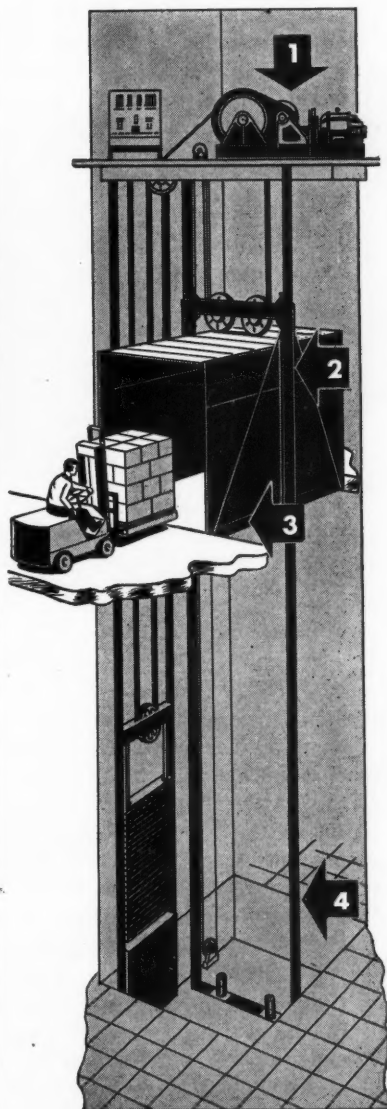
form. As one of the photos shows, the loading ramps are of the adjustable type and are designed for power handling by use of yokes, which are folded flush with the steel deck when the equipment is in use.

The fork truck may enter the plant either through conventional doors for delivery on the same floor, or via the elevator which serves the previously mentioned storage area on the second floor. All raw materials are transferred on this elevator, the exception being containers which are stored on the first floor.

To board the elevator, the fork truck operator pulls a rope (approximately 10 feet from its door) which is connected to a remote control switch that opens the "disappearing" type door sections. The elevator has a capacity of 20,000 pounds and is of the self-leveling type. The 10' x 14' platform permits adequate utilization of its capacity. The elevator also has a dual entrance feature which per-

(Turn to page 45)

## Built TO TAKE POWER TRUCK PUNISHMENT



**Otis Pow-R-Truck Elevators** are especially designed to withstand the impact, off-balance and extra static loading forces of industrial truck loading.

**1 HEAVY-DUTY HOISTING MACHINES.** Built for extra-heavy loads, the machines have direct-current driving motors and special control to assure smooth acceleration. They are equipped with Micro Self-Leveling to hold the platform level with the landing during loading and thus prevent excessive impact.

**2 STRONGER CAR FRAME AND DIAGONAL BRACING.** The car frame is constructed of angle-reinforced channels or heavy ship channels to insure needed rigidity. Diagonal bracing is strengthened to resist the tendency of the platform to tilt during off-balance loading of concentrated unit loads.

**3 HEAVIER PLATFORM FRAME AND FLOORING.** To allow for truck loading, the platform frame has more—and stronger—stringers than a conventional freight elevator. Splinter-resistant flooring of extra-thick selected maple, tongue and groove, with an underlying layer of heavy spruce, will withstand concentrated wheel loads.

**4 HEAVIER GUIDE RAIL SUPPORTS.** Heavy guide rail supports and more frequent supporting brackets are provided to withstand the buckling tendency caused by slam-bang power truck loading.



**ELEVATOR  
COMPANY**

Serving the industrial needs  
of America through 256 local offices

FREE BULLETIN B-705F shows in detail the ways Pow-R-Truck Elevators differ from conventional freight elevators. For your copy, mail coupon today to Otis Elevator Company, 260 Eleventh Ave., New York 1, N. Y.

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Company \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

## INDUSTRIAL SCALES . . .

(Continued from page 32)

### Conveyor Scales (Open Type)

Another means of rapid weighing in transit is accomplished by scales installed in roller or belt conveyor lines. In this way, material moving between departments or processes can be weighed, and records kept automatically or semi-automatically, without lifting on the part of employees. Material moves on the scale section during the normal flow and after weighing it continues toward its destination. This type of equipment is popular in many plants, especially at the shipping stage. Outgoing orders are rapidly weighed to determine stock and transportation charges.

### Bench Scales

Many industries use or produce materials which can be weighed most efficiently at bench height. An extremely large variety of styles and sizes of bench scales is available, such as platform, scoop, balancing, over-under weight, counting, computing and many other specialized types. Typical examples are:

**Platform:** It consists of a large platform and head containing weighing and indicating mechanisms. Many kinds of material holders for use on the platform are available.

**Scoop:** Weighing of fine materials, such as chemicals, sugar, powders and small parts, etc., in small quantities, is facilitated by the use of a scoop or other holding device. The shape of the accessory is designed for rapid loading and unloading of material without spilling.

**Computing:** This special purpose type is available with a variety of charts for laboratory or inspection purposes. For example, there is one used for grain inspec-

tion and dockage which indicates the net weight of the sample, computes the weight per bushel, determines and indicates the percentage of dockage.

**Balancing:** The original type of scale consisting of a lever with pans or platforms either resting on or suspended by chains at both ends is still standard equipment in industries requiring minute weighing. Specialized types are available for industries such as automotive or aeronautics where trueness of weight of compensating parts is important.

**Over-Under Weight:** For rapid determination of correct weights prior to packaging, this type of scales is commonly used for small parts. It is also known as "net weight" type. In practice, a predetermined weight is fixed on the scales by adjustment, fixture or sample, and work in process is checked against the standard. A single pointer indicates the correct amount between deficiency and surplus limits.

**Counting:** Counting scales are available in many bench or floor mounted sizes. In operation, the parts to be counted are placed on the main platform or scoop of the scales. If scales are set for a 100 to 1 ratio, two parts are placed in a small scoop. When a balance is effected by adding or removing parts from the main platform, there are 200 parts on it.

By adjustment or use of additional small platforms, the ratio can be changed for various applications. This type has been found extremely useful in piece work production, inventory and packing operations.

### Portable Scales

Manufacturers also offer wide varieties of portable scales for general and specific purposes, usually under two tons. Some specialized types include scales built into the platform of a heavy duty industrial wagon for weighing iron bars, castings, ingots, sheet metal, iron and

steel plates. Another design is installed on a lift truck below the scoop, for determining weights of sand, gravel, coal and other materials. This speeds material flow since the weighing is done in transit.

### Weighing for Automatic Packaging

The trend to automatic machinery in the packaging of free flowing dry materials has resulted in increased emphasis on scales in industry. Rigid standards of government agencies require accurate weights of packaged products. These have magnified the need for properly engineered procedures in the packaging department in maintaining the over-all material flow.

Material moved by high capacity lines from processing must be matched by adequate facilities in the packaging department in order to avoid congestion, often causing a slowdown or stoppage of production, and delays in shipping.

Modern machines are available which fill and accurately weigh from 10 to hundreds of small packages every minute. These devices utilize either gross, net or volume filling methods. In volumetric filling, it is important that the density of the material is uniform. For instance, products containing large amounts of sugar may vary in weight because pulverized sugar runs as high as 29 fluid ounces in density, powdered, approximately 20, and granulated, 16.

For bulk of uniform density, the simplest volume filling methods can be used. These involve filling of standard containers to the top or regulated and timed feeding. In gross weight filling, the container and product are weighed together. Flow of material is regulated by a weighing beam which holds the package at one end. When the pre-determined amount is reached, it trips a gate, instantly stopping the flow of material. Empty containers of uniform weight are important in this method.

## Auger Feeds Material

In net weighing, material is usually fed by an auger from supply bins to the scale hopper. The product is emptied into a container when the desired weight has been attained.

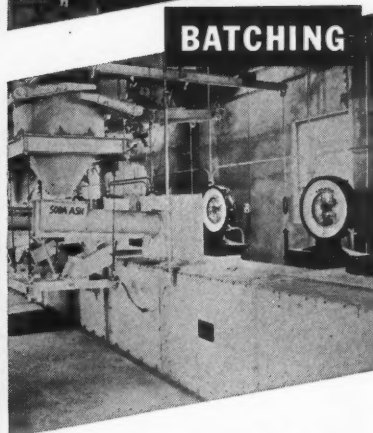
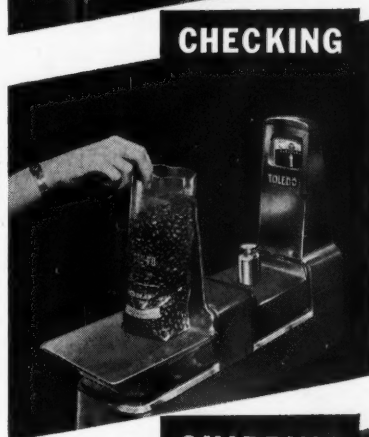
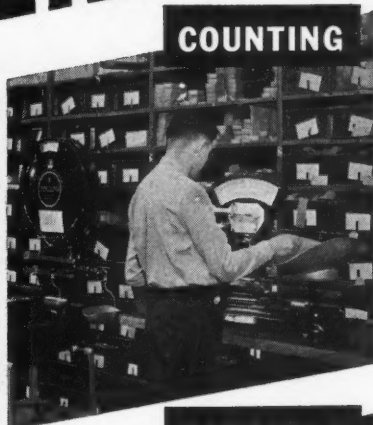
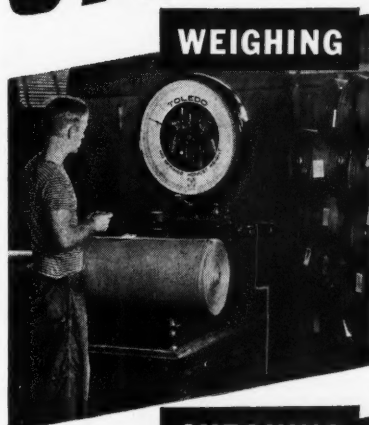
All three systems of weighing discussed are in use with automatic packaging machinery. After filling, the packages are carried by continuous conveyors through packing and case sealing. Frequently such conveyor systems extend to storage and/or the shipping department where the containers are palletized or skidded for movement to the outbound carriers.

A recent development for net weighing and bagging chemicals, resins and other powdered and granular materials brings speed and accuracy to the production line. Material is fed continuously by a vibratory feeder and product flow is electronically controlled. After automatic weighing, the batch is dumped into open type bags, holding 25 to 100 pounds, suspended on the filling spouts. The filled bag is conveyed to the sewing machine for closure. The entire filling unit is enclosed in a cabinet connected to a dust recovery system, thus providing clean operations and product reclamation. (See photo on page 57.)

Maximum benefits from the latest automatic weighing and packaging machinery are obtained by balancing the flow through production with equally efficient methods in packaging, thus maintaining an even volume to the shipping department.

The foregoing paragraphs cover a relatively small sample of the many styles available. One manufacturer reports that nearly 50,000 standard combinations are available to industry. Scales properly applied in material flow lines offer many operating advantages, among them: Rapid flow; no lifting; reduced handling; decreased on-the-floor travel; accurate control for production and accounting purposes. All this means less time

# Control Costs! STOP ± ERRORS



Rapid, accurate Toledo Scales meet the needs in plants today where greater productivity PLUS closer cost control are essential!

Toledo Accuracy prevents small errors from multiplying into big losses and high costs. Toledos save time by making each weighing operation quick and sure. Let Toledo help you with your control jobs in weighing, checking, testing, counting, batching, force-measuring. Toledo Scale Company, Toledo 12, Ohio.

New illustrated bulletin  
No. 2020 shows Better Ways  
to control costs.



Send for this →

# TOLEDO

HEADQUARTERS FOR SCALES

# New Colson Easload Truck

ON

*General Industrial Pneumatics*

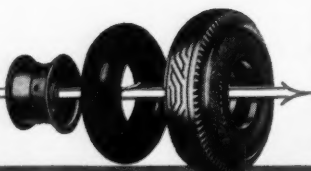
**SAVES TIME • MONEY • LABOR  
MOVES LOADS EASIER, FASTER**



New kind of truck takes the load off the worker, puts it on the wheels. Wheels remain locked in forward position until released by foot pedal. With wheels forward truck can slide on tubular handles.

When released from forward position wheels shift into rear position where they lock to carry the load. Small wheels under nose plate make truck and load easy to handle. 10-inch rubber tired wheels support heaviest appliances.

Manufactured by  
Colson Equipment  
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1317 Willow St.  
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General Industrial Pneumatic tires are available either by themselves or in complete tire-tube-wheel assemblies. Write for the new catalog that tells you how to save money with General Industrial Pneumatics.

**THE GENERAL TIRE & RUBBER CO.**

Akron, Ohio

and less effort required in handling and production—advantages which have a direct bearing on lower unit cost. It pays to consider the right scale for the job.

FLOW acknowledges with thanks the data and photos provided in connection with this article by the following: Toledo Scale Co., Yale & Towne Mfg. Co., W. C. Dillon & Co., Inc., Howe Scale Co., Richardson Scale Co., Builders-Providence, Inc., and Exact Weight Scale Co.

## JAR PACKING . . .

*(Continued from page 29)*

these operations in the order named. To allow sufficient time for these two successive operations, the conveyor travel is designed to advance eight inches, and each advance is followed by a stop of several seconds. With this accurate synchronization each line of six jars is spotted beneath the air jets for the blow-out and then positioned on the elevating mechanism of the filling machine.

The elevating section is approximately four inches long by two feet wide and raises the six jars under the filling spouts. The mayonnaise is thus fed directly into the bottoms of the containers, eliminating air pockets. As the mayonnaise enters, the positioning mechanism lowers the jars, constantly keeping the mouth of the spouts a half inch below the material line.

The machine used is of the cylinder feed type. A plunger sucks the required amount into a cylinder and ejects the material into the jar under pressure. The multiple type machine has six cylinders which fill the same number of jars simultaneously. The capacity is 84 jars per minute.

## Capping, Labeling, Case Loading

The filled containers are lowered to bed level and advanced by the push bar conveyor, which at the same time positions another line of jars under the filling spouts. The



RailMaster 5-Ton MonoRail System saves 31 hours for each car unloaded at this plant.



One man now unloads a car in 5 hours where formerly 3 men took 36 hours.



American MonoRail System also used for storing cokes and breaking scrap with 1000 lb. steel ball.

**Handling Costs**  
**Reduced 86%**

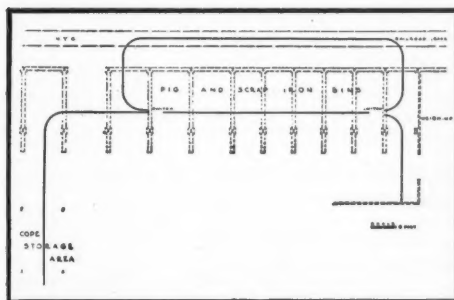
with

**AMERICAN  
MONORAIL**

At this plant it formerly took 3 men approximately 36 hours to unload and store a car of pig or scrap iron. With the American MonoRail system one man now accomplishes the same job in 5 hours.

The savings in time is just part of the story since the system is used for breaking scrap as well as storing cokes.

American MonoRail engineers often prove marked reduction in handling costs. They have hundreds of cases from which to draw. A consultation can be quickly arranged.



SEND FOR BULLETIN C-1. A 56-page book showing successful applications of American MonoRail Systems.

**THE AMERICAN MONORAIL COMPANY**

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CLEVELAND 7, OHIO

APRIL, 1948

# The HERTNER Motor-Generator BATTERY CHARGER



Type "H"  
Single Charger

GET *Maximum*  
**PRODUCTIVE  
OPERATION**  
from Battery-Powered  
Hand-Lift Trucks  
with a

**HERTNER  
Type "H"  
MOTOR-GENERATOR  
CHARGER**

**FULLY AUTOMATIC** Requires no attention during operation. Simply plug in battery and set charge control switch. Cannot overcharge. Automatically cuts off when battery reaches fully-charged condition.

**PROTECTION** Reverse-current protection. Battery cannot drain back through motor-generator even in event of a power failure.

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loss on multiple circuit chargers. Current is never wasted, because overcharging is impossible.

**DEPENDABLE** Maximum charging time 8 hours for lead-acid batteries; 7 hours for nickel-alkaline batteries.

**CONVENIENT** Control board at "top-of-desk" level—meters easily read—control switch right at hand. Charger may be placed directly on floor without losing operating convenience. Batteries may be charged without removal from trucks.

**APPROVED DESIGN** Cabinet is a conventional style with the motor-generator operating in a horizontal position, providing safe, slow speed of 1750 R.P.M. Designed in accordance with Battery Manufacturers' recommendations. Meets the standard specifications of the Electrical Industrial Truck Association.

Write for bulletin 101 describing Type "H" single-battery charger. Other single and multiple chargers available for all types of batteries. For details send us your requirements.



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units are transferred to a belt conveyor running at right angles to the push bar conveyor. As shown in the flow diagram, a deflecting bar at the junction of the two conveyors aids in lining up the jars in single file for the capping machine. The units are once more transferred at right angles to another conveyor, this time to a bottle type. The whole layout, incidentally, resembles a "U" and illustrates rectangular space utilization. The completed units return to an area in the general location of the point of origin of the material flow. Note that the lateral link between the two longitudinal sections of the filling-packing lines is a standard belt conveyor, which thus facilitates effective utilization of the available manufacturing area.

58-millimeter screw caps are applied by a fully automatic four-head capping machine. The caps are fed from a hopper to the heads by a revolving selector wheel. A mirror on the ceiling shows the contents in the hopper, and an automatic ejector removes faulty caps.

Another section of the bottle conveyor transfers the capped jars to the labeling machine, which is also fully automatic. A slotted revolving wheel removes the jars from the conveyor and transfers them on a four-position revolving fixture. Held firmly on the latter, the glued label is applied and then smoothed by two wiping "fingers." One varnished label is applied to each jar. The completed units are placed by another transfer wheel to the final conveyor, a belt, which passes through a wall opening to the case loading station.

Here two operators, one on each side of a table, load the shipping containers, which are placed on a working ledge at a convenient level below the table top. The simple sliding motion involved tends to decrease operator fatigue and so contributes to increased output. The loaded cases are brush glued and set on four-wheel flat trucks to dry. The perishable nature of the condiment products requires immediate turnover, hence extensive storage facilities are not required.

## 2-FLOOR LAYOUT . . .

(Continued from page 39)

mits entry from either the dock or the first floor.

Since all equipment on order has not been delivered, the fork truck operator accompanies the material to the second floor, with one loaded pallet on the forks and a second beside the vehicle. Definite rules are observed to avoid tying up the elevator unnecessarily. At the upper level, for example, the operator has instructions not to run each load to the stacks, which may involve a run of 200 feet each way. Instead, the operator immediately unloads the pallets just off the elevator. He then closes the doors, making the elevator available to the other crews. Thus, while the loads are being transferred and stacked, the elevator is released for further use.

With a full complement of equipment, the procedure will be similar except that a second fork truck will unload on the second floor, and the truck on the receiving dock will not accompany the loads. Hand pallet trucks are also used for unloading the elevator.

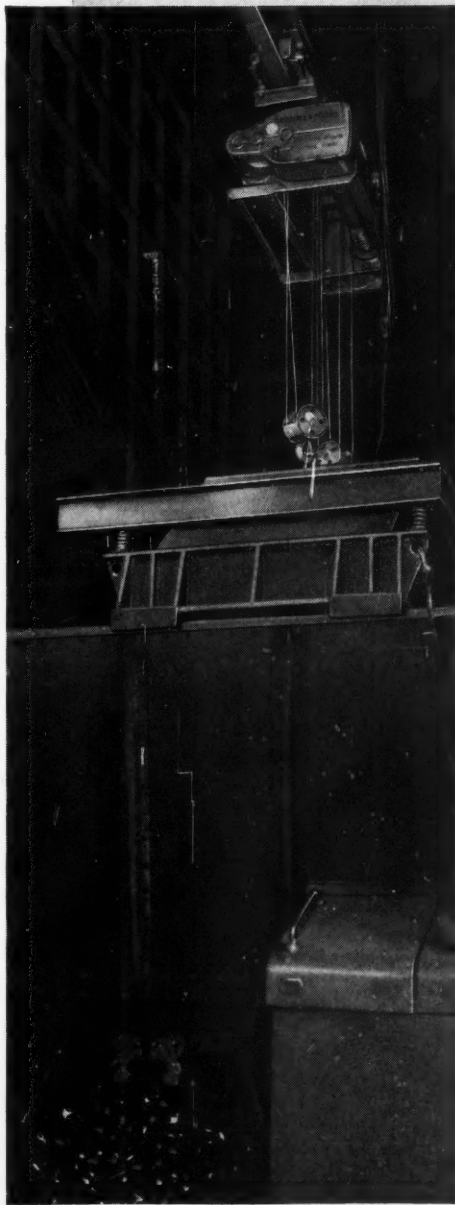
### Storing Bagged And Other Materials

The storage area consists of three 34-foot-wide bays in the south half of the floor, with the bays separated by 10-foot aisles. The standard pallet size for raw materials in bags and drums is 42" x 60". An exhaustive preliminary study revealed this size as most suitable for the multi-wall bags of pigments and materials in various sizes of drums. This size also permits the stacking of bags in interlocking pattern. These large pallets have five stringers for extra support.

The individual bags range in weight from 35 pounds to 100 pounds. The average load per pallet is 3000 pounds, and tiers are usually two high, which is about 12 feet to the top of the load. In previous practice, the maximum load per pallet was set at 2500 pounds, and these units were also stacked two

## THIS TWIN-HOOK HOIST

# *Speeds Transfer of* **ROBINS CAR SHAKEOUTS**



• Typical of R & M "engineering to the job," this new 5-ton twin-hook hoist dependably handles the powerful Robins Car Shakeout. Easily, quickly, and *safely*, it places the heavy unit in position for vibrating the car, then transfers it to the next car to be emptied. *Dependability* and *ease of operation* are of *first importance* on jobs like this.

### FAMOUS FOR PERFORMANCE

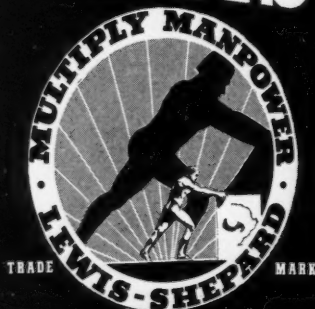
This same smooth, trouble-free operation has made R & M's the choice in all fields — construction, canning, meat packing — metal working, boat servicing, foundry — *wherever there's lifting to be done*. Let them serve *you*, too. Write for descriptive literature.

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high. The new 3000-pound limit per pallet was adopted when it was realized that greater pile height would be gained with fewer pallets tied up in storage.

An interesting point is the segregation of bagged pigments, with colored types stored on one side and white types on the opposite side of the room. This practice prevents contamination in case of broken bags.

Incidentally, a 48" x 72" pallet is used for empty containers, which are extremely light in weight. The upstairs area is used for these only to accommodate surplus stocks which cannot be stored on the first floor.

Some cartoned pigments are likewise stored on the 48" x 60" raw material pallet. These containers are 29" x 17" x 17" and are usually stacked in two layers of five boxes per pallet. Red lead comes in 30-gallon drums weighing 525 pounds each; Six of these make up a pallet load, and these units are stored two high. Material in wooden barrels is stacked in star pattern—that is, one unit on each corner and the fifth one nested in the center. Resin, in 55-gal. drums, is stacked similarly. One of the photos shows the orderliness of this palletized warehousing operation which involves numerous types of containers and materials, some of which must be protected against damage and loss through contamination.

### Material Control By Pallet

Materials sent to the milling department (in the north end of the floor) are controlled by the pallet load. Each type of raw material is coded by use of a numerical system. As a pallet load is moved to the mixing department, the number is sent to the production office. When the minimum stock figure has been reached, the purchasing department re-orders or checks the location of purchased stock in transit. Both solid and liquid materials are controlled by weight.

A prescribed procedure must be followed in moving the stocks from the warehouse to the milling floor.

The method used is credited with having eliminated four handlings. The steps are as follows. The fork truck operator comes to the pigment warehouse at the beginning of the work day. It is his duty to unstack a pallet load of every type of material normally used and place these on the floor in the aisle. The fork truck then leaves for duty in other parts of the plant.

With the pallet loads on the floor, the stockman can move them conveniently, and as needed, to the milling department by means of a pallet hand truck. This method releases the heavy-duty powered equipment for the heavier jobs involving longer hauls.

Small batches are an exception to the procedure outlined. For transferring a small number of bags or boxes of pigments, the stockman uses a semi-live skid with a standard two-wheel jack handle. He travels up and down the aisles selecting the stock and delivers it to the mixing department. "Broken" pallet loads are maintained for

## CRANE USERS "REPEAT ORDER" on EUCLIDS

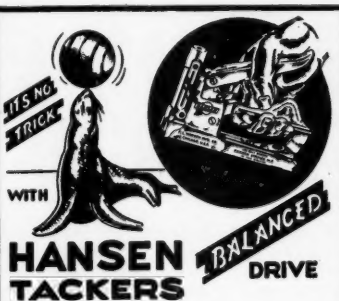


Efficient operation with a minimum of repairs over long periods makes it seem wisdom to old users that each new crane requirement be filled with a similar dependable "Euclid" crane.

You will doubtless desire

a copy of the new Euclid Crane Catalog now in process of compilation. Just drop us a line and we'll be glad to forward your copy when it is ready.

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you can streamline your shipping department. Durable, rapid-fire Hansen Tackers speed carton assembling, lining, sealing; tagging, etc.

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your operators can drive tacks or staples as fast as they can squeeze the handle—accurately, firmly. Magazine holds scores at one loading.

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is the ideal time to cash in on the speed, simplicity, and economy of Hansen operation. There is a Hansen Tacker to fit every job.

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**UNITED STATES RUBBER COMPANY**  
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this purpose so that there is no discrepancy in the stock control.

Another control factor is the practice requiring only one person to issue materials from the storage area—the stockman. An advantage of this arrangement is that he is familiar with the stock on hand, its location and the method of storage. Good housekeeping is also promoted, since he alone is responsible for the appearance of the area. The presence of any rubbish can thus not be blamed “on the other person.” The area is swept once a day to prevent accumulation of dust.

With the storage area located in the south end and the milling or mixing department in the north, delivery of the materials is made in a straight line, avoiding any possibility of waste effort or steps. Temporary stock areas are located near the chutes feeding the ball and pebble mills (which, as previously described, are installed just below the floor level). High speed mills are also located below the second floor but are fed through a closed pipeline from a hopper into which

## THOMAS PRY TRUCK

**Easy, Fast, Safe  
For Big Loads**

Loads of freight too big or too heavy for regular 2-wheel trucks can be handled easily with Thomas Pry Trucks, particularly when used in pairs. Sharp steel nose slides under load, tremendous leverage enables user to easily raise load as high as 9" from floor. Used by freight handlers on RR, trucks, docks and in mfg. plants. Made in 3 sizes. Capacities up to 5000 lbs.

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Many purchasers use Pry Trucks in pairs. Two men can tackle a mountain of freight, too big or too bulky to handle with anything else manually, and quickly, easily move, shift, load or unload.



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**FLOW**

the paste is discharged after pre-mixing. It is to be noted that the supply of pallet loads keeps ample work ahead for a full day's run in the production department. Thus traffic is held to a minimum. Stocks for individual batches are readily selected by use of semi-live skids, which are here employed to supplement hand pallet trucks. Stock selection for batching purposes involves frequent stops and very short moves, an operation to which the semi-live skid method is well suited.

A few highlights follow on the pipe flow of liquid materials. These are brought into the mixing department through pipelines from a tank farm, located at a safe distance from the building at the west end, and storage area in the Varnish Plant. The pipelines terminate over built-in floor scales. Open tank trucks, equipped with two rigid and two swivel casters, are spotted on the scale platform to receive the proper weight of liquid materials. These are of course discharged through drain cocks into the mills

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**The Nolan Company**  
Dept F, Bowerston, O.



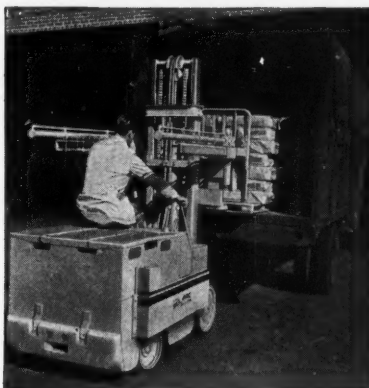
## MATERIAL HANDLING *News*

Alert management in many businesses, and yours may be one, has long sought for a quick, low-cost machine-power way to transfer material from pallets to common carriers when the pallets are not to be shipped. That problem has been permanently solved by the Clark Pusher Device.

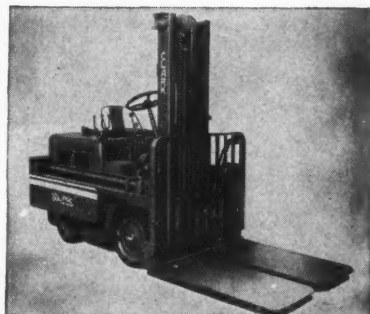
### REMOVE LOAD—RETAIN PALLET

A Clark fork truck equipped with this efficient attachment will perform all the normal functions of a fork truck—lifting loads, carrying them and tiering them; and in addition it unloads a unit load from the pallet *as a unit*, short-cutting the laborious piece-by-piece removal.

You'll undoubtedly think of many other ways to apply the Clark PUSHER's basic usefulness; and every new use to which you can put it means money in the pocket.



**SOLVED!** — that familiar problem of transferring a load of material from a pallet to a common carrier at minimum cost—as a unit instead of one piece at a time . . . Clark's PUSHER Device attachment for Clark fork trucks removes the load, retains the pallet.



### PUSH + PULL = Pul-Pac

Many features of the Clark PUSHER device were born of the exhaustive development work which created the Clark "Pul-Pac," sensation of both National Materials Handling Expositions. The "Pul-Pac" handles unit loads assembled on load-base sheets of corrugated paper, fiber board or similar material, disposable or durable, instead of on conventional pallets. Its rack has a clamping device which grips the projecting edge of the load-base sheet; and retraction of the rack draws the entire load onto the truck's carrying plates. At the load's destination the pusher removes it, base-sheet and all.

### FOR LOWER-COST HANDLING

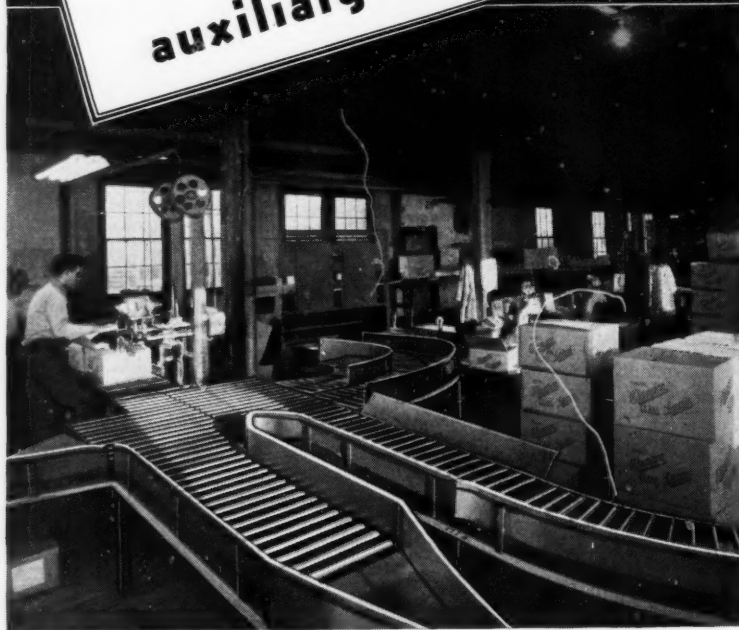
Both these revolutionary advancements are today saving big sums for businesses in many fields. Let Clark help you discover rich opportunities for savings in your own operations. You'll benefit your business when you CONSULT CLARK.

## CLARK ELECTRIC AND GAS POWERED FORK TRUCKS AND INDUSTRIAL TOWING TRACTORS



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Main "dispatching" station for various types of electric lamps destined for storage in different warehouses. After cartons leave stitching machine they are placed selectively on one of the five Logan Roller conveyor lines shown. Cartons delivered to proper warehouse by Steel Chutes and Roller Conveyors.

Just as time and work studies, and better utilization of floor space contribute to stepped-up production, so does "flowing" materials handling . . . through expertly engineered Logan Conveyors.

In just about every case, Logan Conveyors are "part of the process" because they are so closely dove-tailed into production procedure. They provide that all-important "steady movement of materials" . . . timed correctly . . . and at proper working heights for operators.

It is quite probable that Logan Conveyors can lower your production costs at one or more plant operations. Why not write for literature?



## Logan Conveyors

LOGAN CO. INC., 558 CABEL ST., LOUISVILLE, KY.

via the floor hatches or "ports".

### The Portable System

As explained earlier, the ball and pebble mills are installed under the ceiling of the first floor and are charged through ports in the floor above. Special chutes are placed in the openings flush with the floor. This arrangement minimized the need for lifting of material by the operators.

After milling, the material is usually discharged into 550-gallon portable mixing tanks, as illustrated in the flow diagram. One of these tanks is also shown being transported by a 10,000-pound platform truck used specifically for this purpose. Its 27"x60" platform provides ample support for the large tanks, equipped with built-in agitators and built-in motors.

The full tanks are moved by the truck to the centrally located second elevator and thus brought to the upper level. Here the units are spotted over filling hoppers in the floor. The electrical connections are plugged into convenient outlets and the mixing proceeds for the required length of time. (Incidentally, tinting and testing are done before the material-in-process is moved to the upper floor, as shown.

Other points are of interest in connection with the portable mixing tanks. While the average paint batch is 550 gallons, smaller batches of 300 and 100 gallons are also made. For the latter, smaller tanks of this capacity are used, but these units are not equipped with built-in agitators and motors. These lighter tanks are usually moved to a wall mounted agitator by hydraulic hand lift trucks or a portable agitator is applied to the tank. Thus the 10,000-lb. platform lift truck is used economically and efficiently for the heavier tanks.

As soon as a tank has been emptied in the straining department, the straining foreman notifies the production office. Here, the tank board is consulted and the foreman is immediately told whether the tank is to be cleaned or if it is to be placed under another mill. In this way all tanks are kept in con-

stant circulation. The tank board, by the way, shows the location of all tanks in the factory at all times.

Upon completion of the agitation period, the contents are drained through the filter to the hopper (built into the floor) serving the can filling line on the ground floor. This phase is described in detail in an article in the Packaging Mechanics Section of this issue.

#### Plant of Tomorrow

In summary, several distinct features stand out in the "paint plant of tomorrow," whose novel layout is made possible by the principle of "mobility". By application of this principle, two processing floors have been eliminated. Mobility, in turn, has been made possible by use of portable mixing tanks in conjunction with such standard material handling devices as strategically located elevators and platform lift trucks. The dual entrance feature of the elevators, incidentally, adds to the general flexibility of the operation and the layout. With two-level rail sidings (one on the west side at first floor level and another in the shipping department at the south end of the basement level) most incoming material moves up or down only one floor to reach all levels of the plant, unless (as in the case of containers) it remains on the same floor. Thus floor-to-floor traffic is held at a minimum. High ceilings, besides serving production needs, provide maximum cubage for storage purposes. The pallet operation contributes importantly to fewer handlings, product protection, efficient service to production, good housekeeping and efficient stock control. Judicious use of equipment is effected by coordinating with the powered truck operations pallet hand trucks and semi-live skids. Thus each type of equipment performs the job for which it is best suited, resulting in an economical operation.

The "Springdale Plan", as it has been called, may well set a pattern for plant design and material flow for paint plants of the future.

## The LOAD DISPATCHER

### A REMARKABLE TRUCK

### AT A REMARKABLE PRICE

The Load Dispatcher is adaptable to hundreds of material handling jobs around factories, foundries, warehouses, wharves, freight houses, etc., and will save time and money because of its unusually rapid and convenient handling. Its maneuverability and the ease of it amazes everyone who sees it for the first time. Nothing excels the Load Dispatcher for getting around where the going is tight. Its utter simplicity of design assures that it will require the very minimum of "time out" for attention and maintenance. From first cost on through its daily operation—fuel, labor, speed, maintenance—you will find that it contributes in full measure to economy of operation.



Load Dispatcher, one of a fleet of five saving its owners \$100.00 per day, operating in a fertilizer factory with unusually cramped quarters for loading and transporting. Net load shown—2400 pounds.

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*Material Handling Truck Division*

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## EXPO EXHIBITORS . . .

(Continued from page 24)

**OWENS-ILLINOIS GLASS CO.,**  
Kimble Glass Division

SPACE 28



E. B. Dennis, Jr.



S. J. McGivern

Ohio Bldg., Toledo 1, O.  
**WHAT PRODUCTS:** Opticlear vials, ampuls, cosmetic containers, vials.  
**WHO WILL MEET YOU:** S. J. McGivern, vice president and general sales mgr.; E. B. Dennis, Jr., sales mgr. Container & Accessories Div.; Harlan Hobbs, mgr. Sales Promotion Div.; J. A. Serra, mgr. Sales & Service Control Div.; J. F. Greene, mgr. Customer Research Div.; W. F. Smith, and J. J. Moran, Customer Research Div.; L. E. Beiler, mgr. Detroit office; T. H. Hall, Jr., mgr. Indianapolis office; R. W. M. Ritter and K. E. Robb, Sales Promotion Div.; W. J. Souders and T. F. Logan, Sales & Service Control Div.; T. Anderson and E. D. Bowes, New York office; R. R. Gillham and W. H. Blecha, Chicago office.

**PACKAGE MACHINERY CO.**

SPACE 104

East Longmeadow, Mass.

**PAISLEY PRODUCTS, INC.**

SPACES 516, 517

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## 1948 FLOW CONTEST

**FLOW'S** second \$1500 Cost Analysis Contest is now open. Eight prizes will be awarded, beginning at \$500, for papers showing how cost reductions were effected through the application of modern handling equipment.

The contest closes Nov. 15, 1948. Get an early start. Your paper may be a winner—Write for entry blanks and complete details.

**WHAT PRODUCTS:** Bottle label glue, non-warp glue, flexible glue, labeling and case sealing adhesives.

**WHO WILL MEET YOU:** J. Morningstar, President; M. Stempel, Vice President; Earl C. Lenz, General Sales Manager; L. J. LaBrie, Sales Manager; W. Cochran, Clarence Moser, Harvey Schamp, A. Berk, W. Kennedy, Julius Ranft, A. R. Nordone, D. Booksheer, M. Lenz, S. Stewart, S. Knox, S. Schuller, E. Bearman, P. P. Morningstar, H. S. Miller, A. Kruelick.

**PAPER PACKAGE CO.**

SPACE 640

802 S. Delaware, Indianapolis, Ind.  
**WHAT PRODUCTS:** Transparent, cardboard and setup boxes, folding cartons, paper tubes.

**WHO WILL MEET YOU:** Max J. DeVierien, Sales Promotion Manager; Frank W. Messing, Research Manager.

**PETERS MACHINERY CO.**

SPACE 512

4700 Ravenswood Ave., Chicago, Ill.  
**WHAT PRODUCTS:** Cellophane sheeting and stacking machine, carton packaging machines.

**WHO WILL MEET YOU:** H. K. Becker, President; B. C. Lewis, General Manager; J. Boehler, Chief Engineer.

**THE PILLIOD CABINET CO.**

SPACE 204

Swanton, O.  
**WHAT PRODUCTS:** Fancy wooden merchandising containers for silverware, watches, jewelry, cosmetics, etc.

**WHO WILL MEET YOU:** L. L. Pilliod, Sales Manager; Charles W. Kulp, Eastern representative.

**PNEUMATIC SCALE CORP., LTD.**

SPACE 105

65 Newport Ave., Quincy, Mass.  
**WHAT PRODUCTS:** Packaged and bottled goods, blown-up photographs of various machine installations.

**WHO WILL MEET YOU:** N. S. Ross, W. E. Coughlin, R. S. Edling, K. D. Doble, L. F. Blackwell, S. R. Howard, O. H. Hultin, J. Yates, G. L. Libby, R. H. Eiff, and K. M. Peterson.

**POTDEVIN MACHINE CO.**

SPACES 12, 13

1221 38th St., Brooklyn, N. Y.  
**WHAT PRODUCTS:** Conveyor gluer, sheet gluer with removable tank, sheet gluer with cardboard attachment, label pasteur and margin gluer.

**WHO WILL MEET YOU:** J. Henry Richmond, President; Walter V. Hunter, Sales Manager; Joseph S. Hawkins, Sales Manager, Plant #2; James S. Hamilton, Advertising Manager; Sumner Norton, Owens L. Denton and Jack Donohoe.

**RADIO CORP. OF AMERICA, Victor Div., and ALLIS-CHALMERS MFG. CO.**

SPACE 614

Camden, N. J.  
**WHAT PRODUCTS:** RCA Electronic metal detector.

**WHO WILL MEET YOU:** A. H. Hofberg and W. K. Simmons, RCA Industrial Electronic Sales Section.

**FLOW**

**F. B. REDINGTON CO.**

**SPACE 518**

112 S. Sangamon St., Chicago, Ill.  
**WHAT PRODUCTS:** Samples of packages produced on Redington packaging equipment.  
**WHO WILL MEET YOU:** Chas. L. Barr, Vice President; E. A. Siebert, Sales Manager; J. C. Hottel, Hamilton Allport, Jr., Anthony Walkey.

**REYNOLDS METALS CO.**

**SPACES 16, 17, 18**

Reynolds Metals Bldg., Richmond, Va.  
**WHAT PRODUCTS:** Metal labels for both cans and glass. Heat-sealing wraps of all metal and metal laminated material, aluminum containers and cartons, metal envelopes and bags, containers and wraps for frozen foods.

**WHO WILL MEET YOU:** J. C. Bjorkholm, Advertising Manager; J. Louis Reynolds, Vice President; C. F. Manning, Vice President; M. B. Moody, Assistant General Sales Manager; W. D. Peters, Paul Murphy, Assistant General Sales Managers; and G. S. Hammond, H. L. Smith, A. S. Hartano, James Cage.

**RIEGLER PAPER CORP.**

**SPACE 34**

342 Madison Ave., New York, N. Y.  
**WHAT PRODUCTS:** Laminated Foil-Glassine, Heat seal papers and a line of more than 130 packaging papers used in the food, drug and tobacco industries.

**WHO WILL MEET YOU:** P. M. Beach, Sales Manager; E. G. Penn, Sales Promotion; F. L. Triggs, Advertising Manager; C. W. Hoffman, Sales Engineer; R. A. Simpson, A. C. Moreau, and A. G. Griswold, Sales Division.

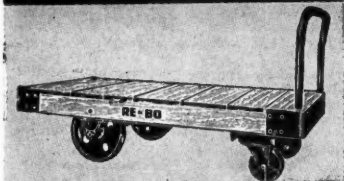
**W. C. RITCHIE AND CO.**

**SPACE 14**

8801 S. Baltimore Ave., Chicago, Ill.  
**WHAT PRODUCTS:** Paper boxes, fibre cans and transparent packages.

**WHO WILL MEET YOU:** J. H. Cronos, President; G. S. Denning, Vice President; A. S. Daniel, Treasurer; T. H. Tredwell, Secretary; F. B. Attwood, Factory Manager; J. K. McBain, Merchandise Manager; J. I.

**PLATFORM TRUCKS**



Made in a number of designs for general utility in handling all sorts of merchandise in warehouses, terminals, factories, or shipping rooms. Each design available in several capacities and sizes. Rugged and solidly built. Engineered for easy maneuvering. Rubber or semi-steel wheels.

**QUICK DELIVERIES**

Send for Bulletin No. 33



Plant—Bedford, Va.

**RE-BO**

MANUFACTURING CO., Inc.  
 331 Madison Ave., New York 17

# BRUSCO ENGINEERED MATERIAL HANDLING EQUIPMENT

## FABRICATORS for PRODUCTION EFFICIENCY

Brummeler Products are engineered to help move your products faster and better through your production line. Regardless of your material handling problem, our Brusco Engineering Department will be glad to work out the best answer, one that will be profitable for you. Brusco originates, designs, and produces any special material handling equipment needed to fulfill any requirement.

### BRUSCO ENGINEERING AND FABRICATING SPELL EFFICIENCY IN PRODUCTION

A few of the popular Brusco items include:

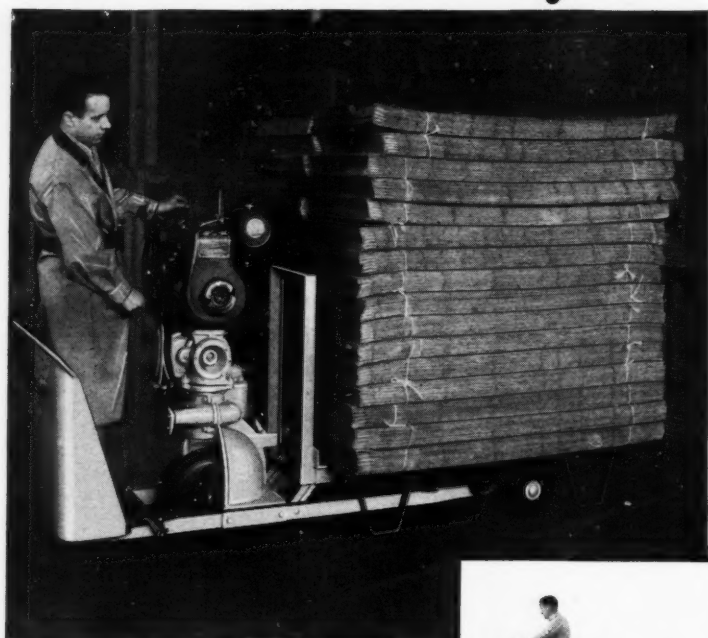
- A—Style "C" Brusco Drop-Door Parts Box with Adjustable Stand
- B—Casting Cooling Box
- C—Ring Gear Truck
- D—Brusco Dump Hopper
- E—Brusco Steel Pallet
- F—Heavy Duty Drop-Door Box
- G—Automotive Panel Rack



# BRUMMELER STEEL PRODUCTS CORPORATION

**DEPT 45 GRAND RAPIDS, MICH.**

# 99.7% said "Yes"



## TRUCK-MAN Owners Stated—"DOES MORE THAN WE EXPECTED"



We've always said, "Ask Any Operator." We asked 1000 owners some vital questions and received enthusiastic and factual replies. The following summary indicates, in part, the value of Truck-Man's ample gasoline power and hydraulic lift to users in all industry.

1. Does Truck-Man do what you expected? "Yes", said 99.7%
2. Operators satisfied with performance? "Yes", said 99.1%
3. Dimensions satisfactory for your work? "Yes", said 99.3%
4. Maximum loads hauled?.....Over 3000 lbs.
5. Actual man-hours saved? (average).....13.80 per day
6. Actual hours per day operated (average)....10.80 per day

Yes, all these questions—and more—we asked! The answers were, overwhelmingly, "YES"!

Why not ask a few yourself? The Truck-Man representative in your area is ready. If you prefer, write for Model D catalog, or bulletins describing our new, versatile Platform Utility Truck-Man. Then, for proof—

### "ASK ANY OPERATOR"

Over 70 Truck-Man distributors in principal cities provide standard service.

## truck-man INC.

1418 West Ganson,

Jackson, Mich.

Buchegger, designer; R. L. Branson, Ohio sales representative.

### A. H. ROSS CO., INC.

SPACE 608

WHO WILL MEET YOU: N. J. Kenny, Vice President; H. F. Lampke, Sales Engineer; J. F. Currian, Chief Engineer; Norman M. Schaefer, Advertising Manager.

### ROTO BAG MACHINE CORP.

SPACE 615

310 East 22nd St., New York, N. Y.  
WHAT PRODUCTS: Roto Bag Machine.  
WHO WILL MEET YOU: Richard H. Schnoor, Sales Manager; Alfred Gans, Chief Engineer; Jerome Fingerhut, Business Manager; Betty Jane Keilus, Publicity Director.

### THOMAS M. ROYAL & CO.

SPACE 409

707 Grange St., Philadelphia, Pa.

### GUSTAVE RUBNER, INC.

SPACE 706

112 W. 44 St., New York, N. Y.

### SCANDIA MFG. CO.

SPACE 639

500 Belleville Turnpike, N. Arlington, N. J.

### SEAL-SPOUT CORP.

SPACE 625

361 Jelliff Ave., Newark, N. J.

### SHELLMAR PRODUCTS CORP.

SPACE 112

Mt. Vernon, O.  
WHAT PRODUCTS: Shell-Pli Boxes and Box Wraps, Strike-through laminated foil over-



R. L. Lee



T. W. Koch

wraps, oleomargarine pouches and flexible packaging materials.  
WHO WILL MEET YOU: B. W. Martin, President; T. R. Baxter, W. L. Moore, R. L. Lee, T. W. Koch, J. N. Huse, J. I. McCormick.

### SHERMAN PAPER PRODUCTS CORP.

SPACE 120

Newton Upper Falls, Mass.  
WHAT PRODUCTS: Line of colored baking cups and pan-liner products, Packaging tray, flexible cushion packing material and the Corroflex Tube-Tainer.  
WHO WILL MEET YOU: George Sherman, President; George E. Stucke, General Sales Manager; E. W. Preston, Sales Manager; Paul Thompson, Advertising and Sales Promotion Manager; George Beale, John Feaver, John Bode, Norman Alfrejd, Marshall Cullinan, regional packaging engineers.

### SHUMANN EQUIPMENT CO.

SPACE 201

1200 E. Carson, Pittsburgh, Pa.  
WHAT PRODUCTS: Automatic bag machine fabricating plicoilm bags.  
WHO WILL MEET YOU: Harold F. Shumann and C. J. Hoffman.

### SIMPLEX WRAPPING MACHINE CO.

SPACE 115

534 - 23rd Ave., Oakland, Calif.  
WHAT PRODUCTS: Bag machine for making crimp bottom bags with labeling attachment.  
WHO WILL MEET YOU: R. Gaubert, President; C. H. Doty, Sales Manager.

### S. K. SMITH CO.

SPACE 210

2857 N. Western Ave., Chicago, Ill.

**WHAT PRODUCTS:** Custom-built containers for food, tobacco, confectionery and gift merchandising.  
**WHO WILL MEET YOU:** L. Richard Smith, Vice President and General Manager; A. A. Lubersky, Vice President, Sales; K. G. Cooley, Sales Manager; J. E. Hardy, New York sales representative; H. Duff Gordon, Chicago sales representative.

# STANDARD-KNAPP CORP.

SPACE 21

127 off Main St., Portland, Conn.  
**WHAT PRODUCTS:** Motion picture films of all types of machines.  
**WHO WILL MEET YOU:** Geo. Ingham, Vice President and Treasurer; Malcolm McFaul, Vice President; A. L. Johnson; Karl Mayer, Vice President; F. P. Lonsdale, L. F. Shattuck.

# STEIN, HALL & CO., INC.

SPACE 644

285 Madison Ave., New York, N. Y.  
**WHAT PRODUCTS:** Specialty liquid glues, rubber, tea, burlap, natural gums, paper sizings, liquid and dry adhesives, packaged foods, coconut, textile sizings.  
**WHO WILL MEET YOU:** Robert Strasser, Vice President; Roger Shoals, Manager, Liquid Glue Division; John Birrell, Manager, Adhesive Dept.; Norman Nuttall, Technical Service Dept.; Joseph Hogan, Paul Kaplan and Robert Hahn, salesmen.

# STOFFEL SEALS CORP.

SPACE 609

535 Fifth Ave., New York, N. Y.

# STOKES & SMITH CO.

SPACES 202-203

4900 Summerdale Ave., Philadelphia, Pa.  
**WHAT PRODUCTS:** Stokeswrap, Automatic packaging machine. Display of packages and containers.  
**WHO WILL MEET YOU:** C. E. Schaeffer, President, S. T. Brinton, J. S. Stokes, M. P. Sullivan, Jr., L. G. Smith, C. H. Nitsch.

# SUN CHEMICAL CORP.

General Printing Ink Division

SPACE 216-A

100 Sixth Ave., New York, N. Y.  
**WHAT PRODUCTS:** Special inks, hard finish inks, collapsible tubes, metal cans and containers, rotogravure inks.  
**WHO WILL MEET YOU:** J. F. Devine, E. J. Kelly, W. G. Forster, T. Roosevelt, S. Langford, W. Parisette, and Miss H. B. Stout.

# SUTHERLAND PAPER CO.

SPACE 612

243 E. Paterson St., Kalamazoo, Mich.  
**WHAT PRODUCTS:** Tilt-bak display packages, Machine set-up packaging, custom built packages, laminated packages, waxed cartons and bakery packages.  
**WHO WILL MEET YOU:** Gordon Dilno, Divisional Manager; Don Wilson, Special Sales; Clifton T. Wilson, Advertising Manager.

# TABER INSTRUMENT CORP.

SPACE 642

111 Goundry St., N. Tonawanda, N. Y.  
**WHAT PRODUCTS:** 4" drawing, embossing and jacketing press, thermobender duplex double edging machine and single edging machine, thermofolder and thermocressor.  
**WHO WILL MEET YOU:** R. F. Taber, president; L. S. Barker, sales manager; R. E. Bryant, plant manager; J. F. Less, service engineer.

# TECHTMANN INDUSTRIES,

Pack-Rite Machines Division

SPACES 509-510

714 W. Wisconsin Ave., Milwaukee, Wisc.  
**WHAT PRODUCTS:** Speedsealer, Moto-Belt Conveyor, Pack-Rite Standard, Tech-Master, Easy Adjustaheat Sealer, Multi-Use Sealer, and Krimpac Semi-automatic Wrapping.  
**WHO WILL MEET YOU:** Wilbur Techtmann, President; Herbert Techtmann, General Manager; Mrs. Gladys A. Techtmann, Sales Manager; Patric Martin, National sales; Joseph A. Kneeland, Advertising Manager.

# TOMPKINS' LABEL SERVICE, INC.

SPACE 504-B

Amber & Allegheny Ave., Philadelphia, Pa.

# TRIANGLE PACKAGE MACHINERY CO.

SPACES 506-507

906 N. Spaulding Ave., Chicago, Ill.  
**WHAT PRODUCTS:** High Speed multi-section "Elec-Tri-Pak" weighers with automatic conveyor, re-engineered utility all-purpose auger packer, volumetric filler.  
**WHO WILL MEET YOU:** Louis R. Muskat, President; Rex A. Stone, Director of Sales; O. L. May, Eastern Divisional Manager; J. Johnson, Sales Engineer.

# TROTH, BRIGHT, PAGE CO.

SPACE 702

1437 Land Title Bldg., Philadelphia, Pa.

# E. W. TWITCHELL, INC.,

Packaging Division

SPACE 504-C

1042 Ledger Bldg., Philadelphia, Pa.  
**WHAT PRODUCTS:** Shelf paper, frozen food

locker paper, textile packagings, paper box supplies, food packagings, and specialty packaging.

**WHO WILL MEET YOU:** W. W. Russell, Manager of Package Dept.; W. F. Baker, Jr., Manager of Beauty-Pake Dept.; R. A. Cyliax, Assistant; N. T. Gates, division head.

# UNION BAG & PAPER CORP.

SPACE 406

233 Broadway, New York, N. Y.

# UNION SPECIAL MACHINE CO.

SPACE 305

402 N. Franklin St., Chicago, Ill.  
**WHAT PRODUCTS:** Dubl-Tape closing unit.  
**WHO WILL MEET YOU:** A. J. Feigel and W. G. Booth, Chicago; A. E. Brauch, Cincinnati; H. C. Vircant, Cleveland.

# UNITED BOARD & CARTON CO.

SPACE 601

3300 Donovan St., Thomson, N. Y.



**BE SKEPTICAL!**

Make us **PROVE** this conveyor can **CUT COSTS** as it **SPEEDS PRODUCTION**

**STEEL-PARTS STEEL BELT CONVEYORS**

Yes, we stand ready to present positive proof that conveyORIZED handling with Steel-Parts STEEL BELT Conveyor will slash costs — step-up production. Mr. H. W. Ziegler, Factory Supt., at the Ed Roos Co., reports efficiency up 30% . . . unit cost down 10% . . . machine capacities increased 65%! And that's only one among dozens of reports testifying to the amazing results obtained with durable, rugged

all-steel conveyors, pre-engineered at the factory for your specific job. Let Steel-Parts engineers make recommendations to increase the efficiency of your materials handling methods. Mail the coupon below . . . today.

**GET THE COMPLETE STORY**  
 Mail This Coupon Today

**STEEL-PARTS**

**MANUFACTURING CO.**

DIVISION OF BLACKSTONE

MANUFACTURING COMPANY

STEEL-PARTS MFG. CO.  
 214 S. Morgan St., Chicago, Ill.

Please send me complete information including engineering data and specifications on your Steel-Belt Conveyors.

Please have your representative call to discuss our specific materials handling problems.

NAME \_\_\_\_\_ POSITION \_\_\_\_\_

FIRM \_\_\_\_\_ ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_



## The "LITTLE HUSTLER"

TRANSFERS STAMPINGS  
AS FAST AS PRODUCED!

The "Little Hustler" is fully portable and quickly adjustable to a wide range of applications. The 8 foot size shown above has a maximum delivery height of 81 inches at 45° and 50 inches in a horizontal position. Made in 13 models: 4-5-8-10 and 12 ft. long, by 12", 18" or 24" wide. Also special sizes. Send for circular LHC. We design and manufacture permanent conveyor systems and all types of SPECIAL EQUIPMENT.

**MAY-TRAN**

ENGINEERING, INC.

Development Engineering and Manufacturing  
1710 Clarkstone Rd. Cleveland 12, Ohio

## Special Equipment

FOR THE EFFICIENCY OF YOUR  
MATERIALS HANDLING



Designed and built to your specific needs, Fab-Weld all-steel equipment means top economy, strength and durability. Trucks, dump hoppers, skids, racks and bin boxes are examples of Fab-Weld geared-to-the-job engineering.

Write our Materials Handling Division for full details. Representatives in all principal cities.

**FAB-WELD**  
CORPORATION

RICHMOND STREET at PICKWICK  
PHILADELPHIA 34, PA.

U. S. AUTOMATIC BOX  
MACHINERY CO., INC.  
SPACE 123  
33 Arboretum Rd., Boston (Roslindale), Mass.

VAC-SPRAY MACHINE CORP.  
SPACE 505  
607 22nd Ave., N. E., Minneapolis, Minn.  
WHAT PRODUCTS: Spot labeling machine with automatic feed attachment and stand up device.  
WHO WILL MEET YOU: Jay J. Golfus, vice president and general manager; Burton Toles, president; Robert D. Ervin, sales manager; Rolf Eng, chief engineer.

WAXED PAPER INSTITUTE, INC.  
SPACE 635  
38 South Dearborn Street, Chicago, Ill.



A. H. Noelke

WHAT PRODUCTS:  
Display of qualities and uses of waxed paper.

WHO WILL MEET YOU: A. H. Noelke, Secretary-Treasurer.

H. G. WEBER & CO., INC.  
SPACE 617  
725 Fremont St., Kiel, Wisc.  
WHAT PRODUCTS: Photographic exhibit of various types of machines offered to the paper bag manufacturing trade.  
WHO WILL MEET YOU: H. H. Weber, President; Fred Lubeley, General Manager.

WEINMAN BROTHERS, INC.  
SPACE 610  
335 No. Wells St., Chicago, Ill.

FRANK W. WINNE & SON, INC.  
SPACE 623  
42-44 No. Front, Philadelphia, Pa.

WOLVERINE PAPER CONVERT-  
ING MACHINERY CORP.  
SPACE 643  
19210 Stansbury Ave., Detroit, Mich.  
WHAT PRODUCTS: Roll to roll hydraulic Aniline printing press, four color; automatic ink roller washing machine.  
WHO WILL MEET YOU: Richard W. Nagel, President; Ludwig Bischoff, Vice President; Bernard Habel, Designer and Chief Engineer; Herbert Nagel, representative.

WOOD CONVERSION CO.  
SPACE 722  
Dept 156, First National Bank Bldg., St. Paul, Minn.

WRAP-ADE MACHINE CO., INC.  
SPACE 5-6  
778 Bergen St., Brooklyn, N. Y.  
WHAT PRODUCTS: Automatic pop wrapping machine, continuous heat sealer, jaw type heat sealing crimpers.  
WHO WILL MEET YOU: A. M. Powell, Vice President and C. F. Van Sweringen, sales representative.

WRIGHT'S AUTOMATIC  
MACHINERY CO.  
SPACE 619  
Calvin & Holloway Sts., Durham, N. C.  
WHAT PRODUCTS: Mayplex sandwich wrapper, weigher with hopper, incline and take away conveyors.  
WHO WILL MEET YOU: R. H. Wright, Vice President, E. O. Norvell, Southeastern District Sales Manager; Ross A. Bennett, Eastern District Sales Manager; W. W. Case, Factory representative; J. C. Petres, Application Engineer; G. M. Tracy.

ORDER A FLOW DIRECTORY of Material Handling Equipment, Machinery and Accessories now. Orders taken at Booth 701.

# PALLETS

MADE TO YOUR  
SPECIFICATIONS!

From Air Dried Hardwoods

ALSO  
BOX PALLETS  
BULKHEADS  
CRATES

Write and tell us your needs  
or send us your specifications  
for quotation.

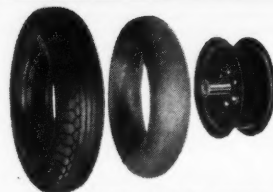
Incorporated 1922

**BIGELOW-GARVEY**  
LUMBER CO.

326 W. Huron St. Chicago 10, Ill.  
Phone: WHitehall 5252

MILLS: Arkansas - Georgia - Wisconsin  
Minnesota

Manufacturers!  
WE CAN  
FURNISH YOUR  
INDUSTRIAL WHEELS



FACTORY ASSEMBLED UNITS  
Let us figure with you on your requirements. Complete satisfaction and prompt service guaranteed. Our specialty is the manufacture of industrial wheels in the following sizes: 6 x 2, 6 x 2 lug, 8 x 1, 8 x 2.00, 8 x 2.50, 10 x 2.75, 12 x 3.00, 4.00 x 8 and 16 x 4.00.

All wheels are equipped with highest quality ball or roller bearings and tires are solid or pneumatic with tubes.

SEND FOR FULL  
INFORMATION

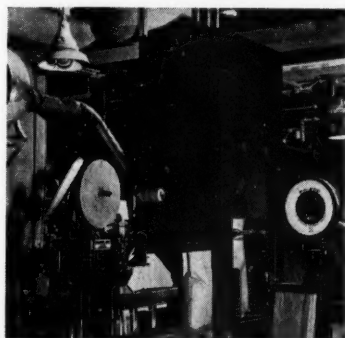
**CITY MACHINE CO.**  
1095 HOME AVE.  
AKRON 10, OHIO



For additional information on these products, write Dept. 5, Flow Magazine, 1240 Ontario St., Cleveland 13.

#### WEIGHING, BAGGING UNIT

**NP218**—Auto-Pack Co. is announcing a machine developed for automatically net weighing and bagging chemicals, resins, insecticides and other powdered or granular materials in quantities from 25 to 100 pounds. The machine can also be used for filling up to 300

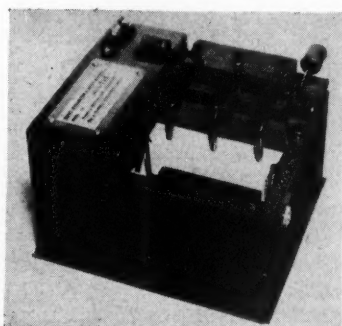


pounds in fibre drums. Accuracy is controlled within a tolerance of  $\frac{1}{4}$  of one percent, according to the company. The product is fed continuously from the supply bin by a vibratory feeder. Flow is controlled electronically. After weighing, the batch is discharged into open-type bags suspended on the filling spout by power-operated clamps. Following filling, the bag is moved by a conveyor, which is an integral part of the unit, to the sewing machine for closure. The entire unit is enclosed in a cabinet connected to an exhaust and dust recovery system, which provides closed operations and product recollection.

#### IMPACT RECORDER

**NP219**—An instrument for recording any unusual shocks, jars or im-

pacts suffered by materials or merchandise during handling is available through Analysis Sales Corp. The unit shown has a moving tape



on which all abnormal shocks are recorded during each hour for 30 days. One stylus shows up and down movements, another indicates side movements and the third, back and forward motions. The machine is designed to aid in fixing responsibility for shipping damage claims since its record shows when and under what conditions the damage was incurred. It is also expected to result in improved packaging if articles are damaged and average handling is indicated on the tape. The unit can be packed with the product or included in a separate container traveling with the shipment.

#### SKID LIFT TRUCK

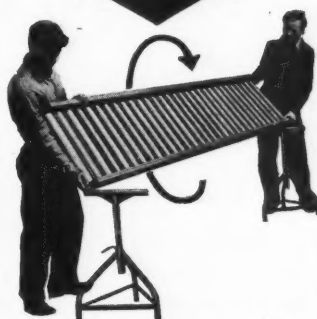
**NP220**—An electrified Samson Skid Lift Truck has been announced by General Sales & Engineering Co. The unit is similar to the hand operated model with the exception of the power unit mounted on the front end. It is equipped with a  $\frac{3}{4}$  HP, three-phase, 220-volt motor which is directly connected to a transmission.

*Announcing*

**THE NEW FERGUSON  
ALUMINUM**

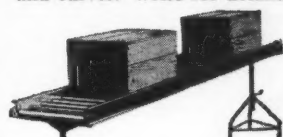


**CONVEYOR**

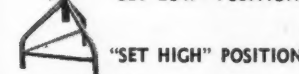


*Lighter than steel . . . with the well-known two-in-one feature . . . portable, durable and NOW easier to handle!*

"Set Low," the channel side rails form a protective guard for small packages—and, by simply turning it over, the rollers are "Set High", permitting the handling of packages larger than the width of the conveyor. These dual-purpose units are made in 10' -0" standard lengths in a number of standard widths and curves. Write for details.



"SET LOW" POSITION



"SET HIGH" POSITION



Ferguson "Turn-it-Over" Conveyors are also available in steel, in both Gravity Roller and Gravity Wheel Types.

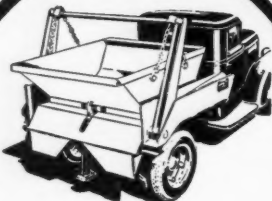
**HARRY J. FERGUSON CO.**

WHEEL • PORTABLE BELT • BELT  
AND ROLLER GRAVITY CONVEYORS

122 WEST AVE., JENKINTOWN, PENNA.

# Brooks LOAD LUGGER

Trade Mark Registered



## ONE Truck—FIVE Bodies!

One Load Luger equipped truck working with 5 or more detachable truck bodies moves as much material as a whole fleet of trucks—and at half the cost! Hydraulic hoist easily installed on any standard truck chassis. Bodies up to 10 cu. yds.



● LIFTS

● HAULS

● DUMPS

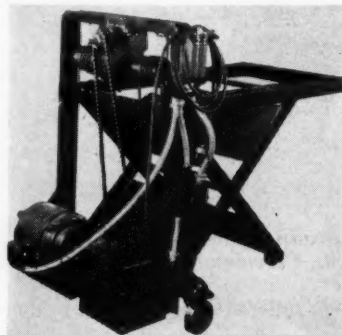
Write for  
CATALOG 47-F

701 Davenport Rd.

# Brooks

EQUIPMENT & MFG. CO.  
KNOXVILLE, TENNESSEE

Direction of the motor is controlled by a pendant switch on a six-foot cable. The skid lift truck can be



moved under a standard seven-inch skid. It is furnished in capacities of 1000 pounds, 1500 and 2000 pounds, and widths of 24 and 30 inches.

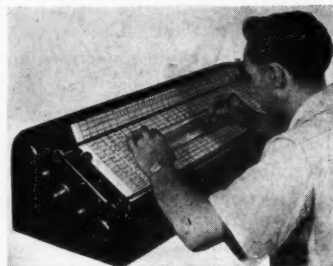
## REVERSE BACKSTOP

NP221—The New Falk Backstop is designed for preventing reverse rotation on conveyor drives, elevator head shafts, windlasses, winches and applications where reverse rotation should not occur, according to the manufacturer. The

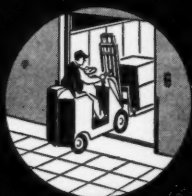
gripping action of the Backstop takes place at the moment that forward rotation ceases. It is said to reduce the possibility of shock or strain to a minimum.

## PRODUCTION CONTROL

NP222—"Chart-O-Matic," a motor driven business machine to give a picture of production, inventory, purchasing and other plant operations, is being produced by Spiral Mfg. Co. According to the manufacturer, the device has a capacity



of 2000 items. Instead of using figures, the operator draws lines on the chart. It is designed to give supervisors a visual record of work

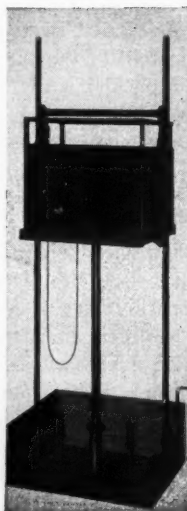


## Using Power Vehicles for Elevator Loading?

That calls for an elevator with rugged construction and accurate landing stops. Oilraulic Elevators work perfectly with material handling methods in use today. Even with heaviest loads they operate smoothly and stop at floor landings accurately. Every Oilraulic is built to take hard wear . . . ruggedly constructed.

### FOR 2, 3 OR 4-STORY SERVICE

Other advantages: Requires no penthouse or heavy load-bearing shaftway structure—powerful hydraulic jack pushes load up from below. Compact electric power unit can be placed in waste space. Gives lowest cost operation on rises up to 40 ft. Car sizes and capacities as required. All popular controls. Write ROTARY LIFT CO., 1152 Kansas, Memphis 2, Tenn., for catalog RE-302.



Rotary

# OILDRAULIC ELEVATORS

The Elevator That's PUSHED Up

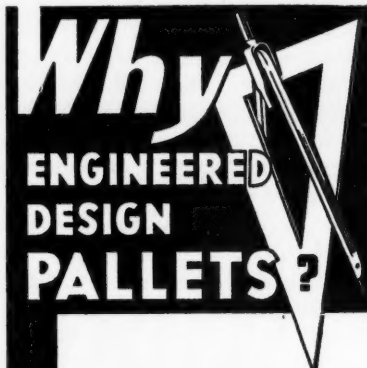
in progress, assembly, manufacturing, completed work, shipments, absenteeism, etc. The chart can be stopped in any position and can be rotated in either direction.

#### FLEXIBLE CONVEYOR

**NP223**—Flexoveyor Mfg. Co. has brought out a new floor conveyor, designed to handle bags and cartons up to 200 pounds at speeds from



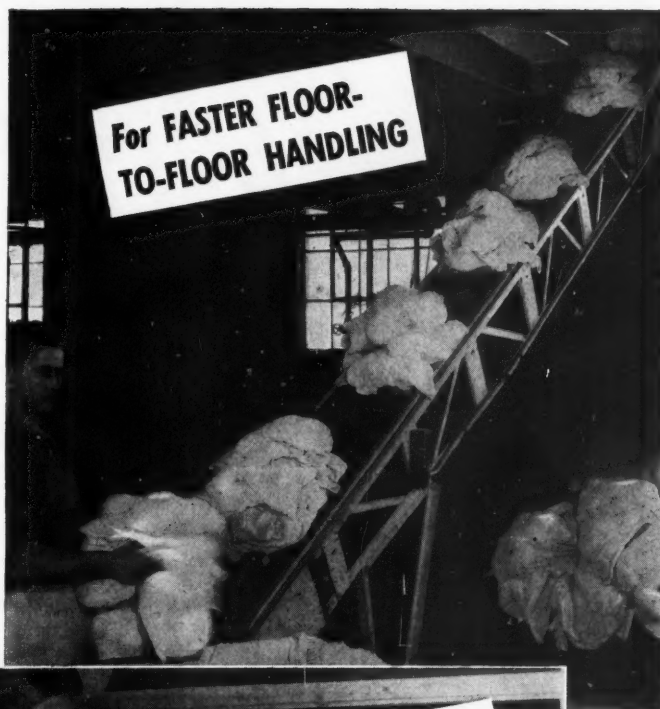
85 to 200 feet per minute. The flexible units come in lengths of 15 feet and up, capable of turning 90 degrees in either direction. Standard width is 20 inches and standard height is 30 inches. They are designed so a number of individual units can be connected to operate as a single unit. Connected con-



Thousands of manufacturers have found that the use of *appropriate* pallets simplifies materials handling.

**ENGINEERED DESIGN** pallets insure appropriateness. Tailored to your operation, they reduce operating costs.

**Pallets Incorporated**  
Manufacturers of  
**ENGINEERED DESIGN Pallets**  
GLEN FALLS, N. Y.



## FARQUHAR Conveyors Cut Your Costs

**WHETHER** it's bags, bales, boxes, bundles, cartons . . . whether you stack, pile, move, load or unload . . . Farquhar Freight Conveyors can cut your handling costs! Built to "take it," flexible Farquhar Conveyors make your packaged materials flow faster, more economically!

Top illustration shows how Farquhar freight model speeds up floor-to-floor handling in laundry plant — carrying laundry bundles from delivery trucks to second floor.

Bottom illustration shows how a North Carolina plant eliminated "dead" storage space with the installation of Farquhar Freight Conveyor. Hundred pound bags of cotton seed meal are now piled higher, faster, easier—in places never before possible with hand labor.

Farquhar has the right materials handling conveyor for your job, too! Tell us your handling problem; we'll give you the information you need. Write: A. B. Farquhar Company, *Conveyor Division*, 206 Duke St., York, Pa., or 616 W. Elm St., Chicago 10, Ill.

**Farquhar**  
PORTABLE OR PERMANENT  
MATERIALS HANDLING  
**CONVEYORS**

HYDRAULIC PRESSES • FARM EQUIPMENT • FOOD PROCESSING AND SPECIAL MACHINERY



*Now...*

## SAFE, SURE POWER FOR TRAVELING HOISTS

New Type "YS"

# APPLETON REELITE

TRADE MARK

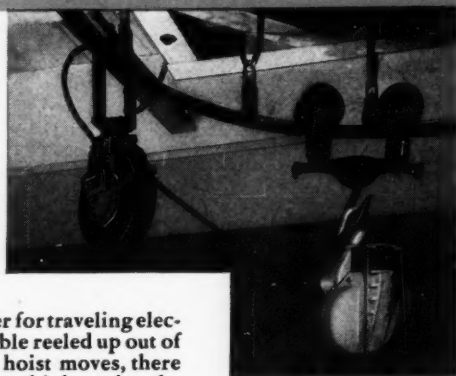
- AUTOMATICALLY TAKES UP, PAYS OUT CONDUCTOR CABLE...
- NO EXPOSED CURRENT COLLECTORS, TROLLEYS OR WIRES

### RATING:

**15 AMPERES**

**550 VOLTS, A. C.**

**250 VOLTS, D. C.**



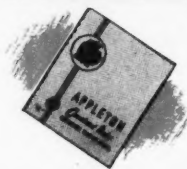
The perfect working partner for traveling electric hoists! Keeps excess cable reeled up out of the way. No matter where hoist moves, there is no danger of cable tangles, kinks or breaks to endanger personnel or delay production.

Swivel base permits cord to be fed in any direction; serves any stretch of track, straight or with one or more bends.

Thus, a Type "YS" Reelite equipped with 45 feet of cord will permit the hoist to travel up to 90 feet, when the Reelite is mounted at the mid-point.

Outer covers are easily removed for servicing brushes and power spring, or to make solderless line connections direct to terminal block. Oil-less bearings at all points of rotation.

*Sold Through Electrical Wholesalers*



**Send Today!**

Write for your free copy of 30-page Bulletin No. 504 which gives complete information on all Reelites—Portable, Constant Duty and special types. Or, see Sweet's File, Page 26/15.

**APPLETON ELECTRIC COMPANY**

1728 WELLINGTON AVENUE

CHICAGO 13, ILLINOIS

14 Branch Offices and 7 Resident Representatives in all Principal Markets

# APPLETON

CONDUIT FITTINGS • LIGHTING EQUIPMENT • OUTLET AND SWITCH BOXES  
EXPLOSION-PROOF FITTINGS • REELITES

veyors can be operated in either direction and can be controlled from the lead unit because of built-in cables and connecting plugs in each section.

### BARREL TRUCK

NP224—Dico Corp. is announcing a new barrel and drum handling truck, known as the "Float-Away". It has a retracting undercarriage which permits the wheels to remain on the floor during all stages of the



handling process. It is designed to stand upright, in a semi-vertical position or horizontally without external support. The truck is built of welded tubular material and has forged steel toes. It is regularly furnished with 58-inch handles and can be obtained with 10"x2 1/2" solid rubber or metal wheels. Its capacity is reported as 1,200 pounds.

### CONVEYOR BELT

NP225—A new adjustable troughing idler for conveyor belts is announced by Koppers Co., Inc. Outer inclined pulleys are adjustable from slightly above the horizontal up to an angle of 25 degrees. All idler pulleys are located in the same vertical plane and the adjustment of the outer pulleys is accomplished in a manner which maintains a constant gap between the ends of the horizontal and inclined pulleys. The manufacturer claims that it is possible to practically tailor-make the idler installation to fit the conveyor belt.

# INDUSTRIAL TRUCKING FLOORS

Resurfaced to withstand any traffic...



**\$15.00**  
per unit  
Consists of:  
4—50 lb. Bags Powder  
5 Gals. Camperete Liquid  
Coverage:  
100 sq. ft. about 1/4" thick

## with CAMP'S No. 7 INDUSTRIAL FLOOR RESURFACER

Tougher than Steel—Easy to Apply

**COSTS ONLY \$15.00  
PER 100 SQUARE FEET**

Camp's No. 7 is applied like cement over your present wood or concrete floors. A 1/4 inch thickness resurfaces worn or rough concrete floors to withstand any traffic. Sets in three or four hours—ready for heavy trucking in 24 to 48 hours. Camp's No. 7 comes ready to mix—nothing else needed. Your choice of brown, red and natural dark gray.

Order a trial unit—you must agree it is the best resurfacer you have seen, or there will be no charge.

EVERY INSTALLATION UNCONDITIONALLY GUARANTEED  
Further information describing this and other Camp's flooring material sent on request.



Typical of Camp jobs is the recent application of almost 300,000 square feet of NO. 7 in a Marshall Field & Co. warehouse in Chicago. Users of Camp Flooring Materials include Illinois Bell Telephone, U. S. Rubber, Sears, Roebuck & Co., Carnegie-Illinois Steel, General Motors, American Can, etc.



Although NO. 7 is perfect for 90 per cent of all industrial needs, over 15 other Camp Flooring Materials enable us to meet even highly specialized specifications. Whatever your problem, we are ready to advise and assist. Write today. No obligation.

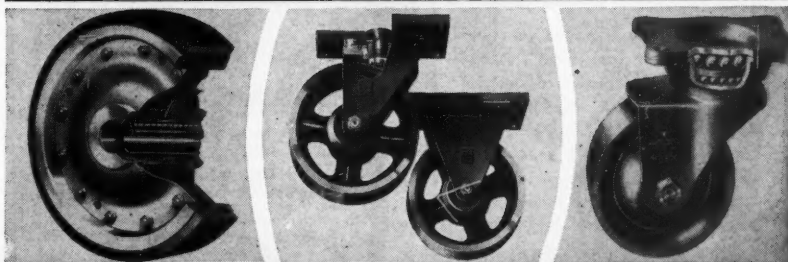
**The CAMP COMPANY**

6958 S. State St., Chicago 21, Ill., Triangle 4770



**CUT  
DOWN  
MATERIALS  
HANDLING  
COSTS**

# DARNELL CASTERS & WHEELS



*Built for the Job*

**DARNELL CORP. LTD., 60 WALKER ST., NEW YORK, N. Y.  
LONG BEACH, CALIFORNIA, 36 N. CLINTON, CHICAGO, ILL.**

**FREE-ROLLING  
LONG LIFE,  
LOW MAINTENANCE**

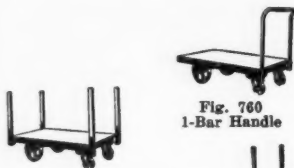


Fig. 760  
1-Bar Handle

Fig. 753  
4-Wooden Stakes



Fig. 762  
2-Pipe Stakes

WITH

**HALLLOWELL**

**TRUCKS  
of  
STEEL**



Fig. 772  
1 Rack

Fig. 751  
4-Pipe Stakes



Fig. 757  
2-Bar Handles

They're built to stand up for years against gruelling punishment . . . and their sturdy, welded steel construction insures against weak, loose joints and wobbly trucks. Free-rolling wheels and casters run easily, even under heavy loads. There are many types and styles—a few of which are shown—each a model of smooth-running durability—available for almost every service. Ask now for your copy of the "Hallowell" Catalog—it describes them all.

OVER 45 YEARS IN BUSINESS

**STANDARD  
PRESSED STEEL CO.**

BOX 799, JENKINTOWN, PA.

Branches: Boston, Chicago,  
Indianapolis, St. Louis, San Francisco

# OPPORTUNITIES

*Men wanted    Jobs wanted    Lines available*

## REPRESENTATIVES WANTED

**Representative Wanted**  
Manufacturer of nationally advertised line of equipment and supplies wants manufacturer's representative for a number of exclusive areas. Fast moving, good repeat business. Representative must contact shipping departments. A good opportunity for the right man to secure a permanent and exclusive line. Write, stating number and type of lines now sold.

F. X. Spalding  
7358 N. Seeley Ave.  
Chicago 45, Illinois

Nationally known manufacturer of Electric Hoist and Cranes is interested in receiving applications from sales engineers selling on a commission basis in the following cities:

Buffalo, N. Y.; Los Angeles, Calif.; Jacksonville, Fla.; Columbia, S. C.; Knoxville, Nashville, Memphis and Chattanooga, Tenn. Box 4148, FLOW.

## SALES MANAGER WANTED

**SALES MANAGER WANTED!**  
Man with Engineering and Mechanical

## "RAZORBACK" SHOULD BE YOUR BUY-WORD FOR PALLETES

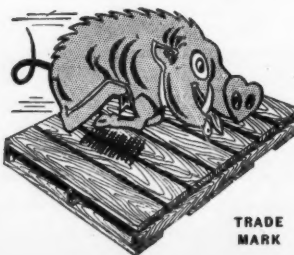
When you buy "Razorback," you get **QUALITY** pallets—priced right when you buy, and lowest in maintenance cost! Check into our new lite-weight dry cottonwood Corner-Lock 4-Way Pallet. Write for descriptive folder.

## ARKANSAS PALLET CORP.

Plant and Sales Office  
PINE BLUFF, ARKANSAS

Box 794-A

Phone 3244



TRADE  
MARK

Experience for Merchandising Department of Internationally known Manufacturer of Conveying Equipment and Machinery Products—backed by large Advertising Campaign. Splendid Opportunity for right man—in pleasant midwest city. State experience, education, qualifications and salary expected. Your reply held in strictest confidence. Write—BOX 4248, FLOW. 1240 Ontario Street, Cleveland 13, Ohio.

## USED EQUIPMENT WANTED

**WANTED IMMEDIATELY  
FORK LIFT TRUCKS  
GAS OR ELECTRIC  
HIGH PRICES PAID  
A&A MACHINERY  
1267 Flushing Ave., Brooklyn, N. Y.  
EV 7-9466**

## DISTRIBUTORS WANTED

**DISTRIBUTORS WANTED**  
by substantial manufacturer of  
**NEW MATERIALS HANDLING  
ITEM**

(patent pending)

—Requires knowledge and practical background in materials handling  
—Characteristically high dollar volume sales  
—Currently being used by several large manufacturers

If interested, please give complete information as to:

- Territory covered
- Number of salesmen
- General experience in materials handling
- Other lines handled
- Several references

Box 4348, FLOW.

## EQUIPMENT FOR SALE

### ELECTRIC HOISTS

We have a fine stock of NEW one-motor, monorail type, Hi-Lift electric hoists in capacities from 1 to 5 tons. Immediate shipment. Also prompt delivery of overhead cranes and monorail systems.

### ABELL-HOWE COMPANY

53-a W. Jackson Blvd. Chicago 4, Ill.

### ALL NEW EQUIPMENT

50 New GE  $\frac{3}{4}$  HP, 60 cycle, single phase, right angle gear head motors, 1775-58 RPM.

175 New Black Hawk hydraulic jacks—24" to 50" extended.

30 New 10' sections Speedways wheel conveyors 15" wide, 10' 2" dia. wheels per foot.

50,000  $\frac{3}{16}$ " hardware grade chrome bearings.

Offered subject to prior sale.

**CHARLES S. JACOBOWITZ CO.**

3080 Main St., Dept F-4  
Buffalo 14, N. Y.    AMherst 2100

# Catalogues

## LITERATURE and BULLETINS

The publications featured on these pages were written by experts. They are FREE publications. To obtain these use the postcard bound into this issue.

### 469—Demountable Dump Bodies...

A catalog is available on how Dempster-Dumpster drop bottom bodies are saving manpower, trucks, operating costs in many industries. The bodies range from "light" to 7½-ton payloads and handle anything from dust to liquids, including hot materials up to 1500 degrees F. The catalog also describes how one truck serves from six to 50 bodies.

### 470—Floor Marking Machine...

A brochure offered by H. C. Sweet Co. on its Florline marker. It is designed for one-hand operation and walking speed. Weighing less than 20 pounds, it is handy in narrow aisles and around machines, making either 4" or 2" lines. Of heavy-gauge metal.

**471—Shipping Guide...** Material dealing with shipment marking equipment, including machines, ink, paper, brushes and accessories is contained in a file folder prepared by Ideal Stencil Machine Co.

**472—Metal Detectors...** Electronic inspection of food, plastics, paper, rubber, textiles, explosives and other products for tramp metal particles is explained in a bulletin issued by Radio Corp. of America.

**473—Color Register...** A folder describing its Opti-Chek, designed for determining accurate register of color plates used in printing labels or boxes has been issued by H. H. Heinrich Co.

**474—Automatic Liquid Filler...** MRM Co., Inc., has prepared a catalog showing various types of liquid filling machinery for cans or bottles. Specifications, illustrations and features are given for each model.

**475—Tape Dispenser...** A catalog sheet describing the Texcel predetermined length dispenser for industrial tapes can be obtained from Industrial Tape Corp.

**476—Volumetric Filler...** J. L. Ferguson Co. has issued a bulletin explaining the operation of the Packomatic Model 8 packaging unit which includes a top and bottom carton sealer and volumetric filling device.

**477—Sealing Crimpers...** Various types of automatic and semi-automatic heat sealing crimper for closing en-

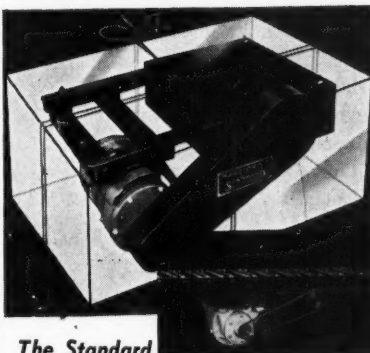
velopes and many types of bags are illustrated and described in a bulletin issued by Wrapade Machine Co., Inc.

**478—Envelope Fillers...** Carter Engineering Co. has published a folder showing several applications of its machine which fills and seals envelopes with any powdered or free flowing material.

**479—Half-Ton Fork Truck...** Specifications for the Tract-R-Lift gas-powered fork truck with a 1000-pound capacity are listed in a leaflet issued by Tract-R-Lift Corp.

**480—Stencil Duplicator...** A folder has been issued by The Multistamp Co. showing its various outfits for printing on wood, cloth, cardboard, boxes, paper, etc.

## New "POWER-PACKAGE" Unit For Roller and Belt Conveyors



The Standard

## HANDI-DRIVE

This self-contained drive unit provides tractive power for any gravity conveyor—belt or roller. Converts present conveyors to live roller or belt—quickly at low cost. HANDI-DRIVE Bulletin No. FI-48 gives complete information—how to apply to present conveyors or plan new system with standardized units—straight, curves, or inclines. Write for copy today.



Standard Conveyor Co.  
North St. Paul 9, Minn.

**Standard**

STANDARD  
HANDI-DRIVE  
BULLETIN

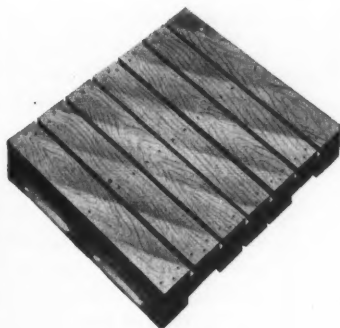
GRAVITY & POWER  
CONVEYORS

## IPCo

### The Last Word in PALLET design & construction

A streamlined, modern designed and engineered Material Handling Unit, not the old-fashioned Platform Pallet of yesterday.

They cost you less in "the years of service rendered," and after all, that is what you are really buying.



May we send you our interesting Hand Book "Modern Material Handling." It's free.  
Member—National Assn. of Manufacturers.



## INDUSTRIAL

PALLET COMPANY, INC.

1616 Woolworth Bldg. New York 7, N. Y.



## THERE'S GOLD IN THEM THAR MOUNTAINS...

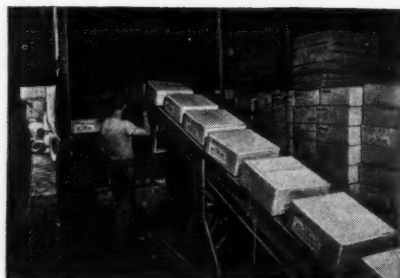
Mountains of goods on the loading platform are only potential profits...until they're shipped.

With Rapids-Standard Material Handling Equipment it is easy to keep loading space with production. One man at each end of the line can do it...quickly. Of course, handling time is cut to the bone...and costs, too. Those mountains of goods are turned into profits...and fast.

Throughout the plant...up...down...in a straight line...around curves...Rapids-Standard Material Handling Equipment keeps things moving. Materials, parts, finished products are moved from where they are to where they should be without loss of time and with a minimum of manpower.

We'd like to tell you more about our products and show you how they can serve...to your advantage.

**THE RAPIDS-STANDARD CO., INC. • 377 Rapistan Building, Grand Rapids 2, Michigan**  
Your local Rapids-Standard representative is listed in your classified telephone directory.



IT'S WISE TO CONVEYORIZE

**Rapids-Standard**  
MATERIAL HANDLING EQUIPMENT



## COSTS CUT 60 PERCENT ... (Continued from page 13)

Assuming an average for mining and gobbing of 10 tons of ore per day for a 25-day month and a 12-month year which gives 3000 tons, the figure of \$80.00 per year would give a depreciation cost of \$0.027 per ton.

Using the same sets of cost books that we used to figure the cost per ton of ore mined by hand mucking, we arrived at a figure that, plus the cost per ton of depreciation for each slusher, gave us one-half the cost per ton of mined ore. Table 2 gives a cost of \$0.224 for machine mucking compared to \$0.438 for hand mucking, as shown in Table 1.

### Improvements Not Shown In Figures

The actual mining costs per ton were not the only savings that would be effected by the proposed change. The development levels could be driven 100 feet apart instead of 50 feet. Only one gob raise would be driven between levels. The end manway and ore chute of the worked stope or panel would serve as the waste chute and alternate manway for the next stope.

Collectively, the advantages of the use of a slusher over hand mucking are (1) less development work; (2) greater distance between chutes; (3) reduction of costs; (4) better control of ventilation by having less openings to cause air leaks; (5) better safety as men do not have to work under open ground but can run scraper there; (6) better supervision, and (7) more productive labor.

Based on these advantages, and using the type "x" slusher obtained in the above problem, the company installed two slushers in two of the then working stopes. With the "x" slusher we used a 36-inch, one-quarter semi-hoe scraper which is self-loading and self-dumping.

These two installations proved very satisfactory and gave us figures of cost very close to those in Table 2. Slushers and scrapers were then installed in all of the

stopes and the new development program was started.

Figures 2 and 3 show the break-even points of the two methods as applied to any stope. These charts show a break-even point of 2.8 sets as mined by slusher to a break-even point of 4.7 sets moved by hand. Thus, our chances to make a profit was increased 60 per cent by the use of machinery over hand labor in any stope. A risk interest rate of 15 per cent is shown to figure the break-even point. Normally, a risk rate of 20 to 25 per cent on the investment is not uncommon in the mining industry.

We are still using this type of ore handling today. With improved designing and engineering, we are going to faster rope speeds and bigger dippers. Mining by the square set method remains relatively high in cost, but our new handling method has given us the economical operation necessary for a profit.

#### PAINT PACKAGING . . .

(Continued from page 27)

storage section is of course determined by the quantity of stock stored in each case, the individual cases are usually stacked six high and six deep.

Another layout detail is noteworthy. One side of the area is devoted to car shipments, the other to truck shipments. Each side of the shipping area has its own platform scale, of 3000-pound capacity, located adjacent to the main aisle. The operators run their loads on the scales, obtain the weights, and keep moving straight ahead to the outbound carriers. In other words, no motion is lost because the location of the scales was properly considered in the layout planning stage.

#### Lid Preparation

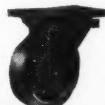
The lid preparation operation is an important part of the packaging job, for two reasons. 1. It is part of quality control because it identifies the product with the sample of each batch which is kept in the laboratory for one year. 2. The

## CASTERS



Your one source of quality casters of all sizes and types — straight, threaded, or extension stems; socket angle head, or flat plate mountings; swivel and rigid forks; ball, "Durex," and sleeve bearings; wheels and tires of cushion rubber, steel, or alloy.

WRITE FOR CATALOG



THE COLSON CORPORATION

ELYRIA, OHIO

Sales Offices and Dealers in Principal Cities

## TRUCKS



There's a Colson truck for every move you make. Light and heavy duty hand trucks, drum and barrel trucks, dollies, and lift jack systems — all designed to reduce handling costs. Write for Catalog.

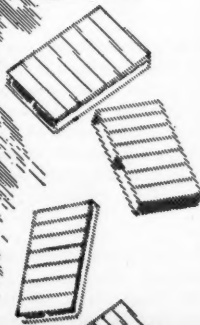
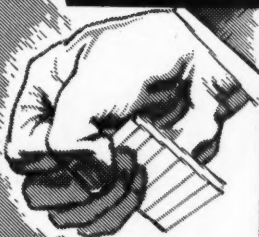


THE COLSON CORPORATION

ELYRIA, OHIO

Sales Offices and Dealers in Principal Cities

## A HANDFUL OF IDEAS



### DEALT A TWO FISTED BLOW TO HANDLING COSTS!

The National Pallet Corp. had a few of these ideas and dealt a great many blows to industries' handling costs—all types of industries in all parts of the country. Yes, National had a few ideas—industry accepted them and is continuing to accept them. That is why National Pallets are today the most widely used pallets in the world.

Make the name NATIONAL your guarantee of reliability.

## NATIONAL PALLET CORP.

Main Offices: Oliver Building, Pittsburgh 22, Pa.

**A+ Last!**

A Positive Clamp Device for lifting objects with FLAT Surfaces.

The Merrill-Volz Flat Surface Drop Forged All Steel Clamp

is specifically designed for gripping such objects. Simply slip it on to the business end of your hoist and attach its jaws to the object to be lifted, and instantly it "takes hold". As easy as that.

**Safe**  
•  
**Rapid**  
•  
**Positive**  
•  
**Economical**

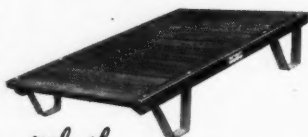
Write for details today.



**MERRILL Brothers**

56-20 Arnold Avenue Maspeth, N. Y.

**LANHAM**  
FOR  
**LIFETIME**  
THE STEEL BOUND  
SKID PLATFORM



with the  
**RE-NU TOP**

Renewable hardwood deck bound in heavy steel angles, clamped with 1/2" steel bolts. Can be used with all makes hand or power lift trucks. Designed to fit YOUR job with capacities from 500 to 20,000 pounds. Plain or armored ends. Stake pockets, crane hooks, special racks and bins available.

**THE LANHAM COMPANY**

12TH AND MAGNOLIA  
LOUISVILLE 10, KENTUCKY

handling of many thousands of small pieces could easily become a problem if they were not properly segregated (according to code numbers) and handled in suitable containers.

Each lid is die stamped with a code number to show the (a) type, (b) color, (c) the batch, (d) the plant and (e) the year in which the paint was made. Lid preparation is also closely tied in with the production schedule. When a batch of paint goes into the mill, a filling ticket is sent to the manufacturing plant from the production office. The filling ticket shows the number and sizes of cans in which the paint is to be filled.

This ticket is given to the lid stamping operator, who runs the required amounts of each size through the stamping machine. In the operation, the stamped lids are held in place by guides, usually in stacks up to 100 units.

The completed lids are loaded on the type of dollies shown. These carriers have sections in the proper

**REVOLVATOR**  
**GO-GETTER**  
**POWER LIFTRUCK**



Skid Platform type illustrated. Pallet and High Lift models also available.

Finger touch directional controls on handle lift loads up to 6,000 lb., move truck forward or backward, and gently drop loaded skid where wanted. Delayed action motor control and dead-man controlled hydraulic braking. Adjustable Timken bearings throughout. Maximum safety, efficiency and durability.

High lift and pallet types available. Also Portable Elevators, Hydraulic Lifts, Red Giant Hand Liftrucks and other material handling equipment. Send for Bulletins.

**REVOLVATOR Co.**  
DESIGNERS AND MANUFACTURERS OF MATERIAL HANDLING EQUIPMENT  
8739 Tonnele Ave. North Bergen, N. J.  
Since 1904

**CONSULTING ENGINEERS DIRECTORY**

Delos M. Palmer & Associates  
Consulting Engineers  
Electrical, Mechanical, Industrial  
Processing, Plant Layout  
Machine Design, Product  
Development, Special Problems  
Toledo 4, Ohio  
733 Nicholas Bldg. GA. 3775

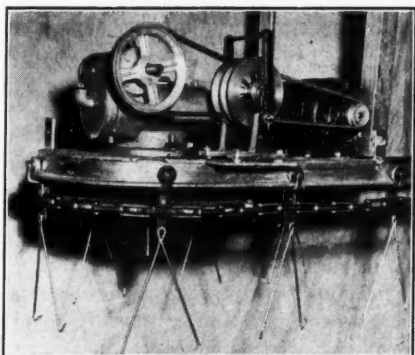
widths for each size of lid produced, and a slanting base board serves to retain the stacks during temporary storage or travel. The individual sections are of sufficient height to accommodate a stack of 100. The dollies are mounted on four swivel casters.

The average large batch of paint is made in lots of 550 gallons. Lid production is readily balanced with this quantity since each dolly is designed to hold the maximum number of lids for the size cans that may be required.

These sectioned, casted dollies avoid haphazard handling of the lids, which would be the case if various types of cartons were used, for example. The wheeled, compact dollies retain the hundreds of flat metal pieces securely. Equipped with a black-painted cover board on which the code number is written in chalk, they also make quick identification of the many kinds of lids possible when they are to be moved to the line. The dollies are convenient carriers from the point of view of balancing paint production with lid production; they promote good housekeeping, and easy control of thousands of small pieces that are produced in various sizes and stamped with code numbers.

Over-all, good layout and mobility are two main features that characterize this filling-packaging line at the Springdale plant (Paint Division) of the Pittsburgh Plate Glass Co.

## KEYSTONE JUNIOR CONVEYORS



100% prefitted. Bolted joints. No track welding, cutting, or fitting required for installation. Easily installed. Low first cost. Overhead or floor supported. Load capacity 75# per trolley. Rivetless Drop Forged chain 2" pitch. Ball-bearing trolleys.

KEYSTONE JUNIOR CONVEYORS are identical to their big brothers—the 348 and 458 conveyors, which are the accepted standard throughout the world. The Keystone Junior picks up where the 348 leaves off. Handling loads of 75# per trolley or live loads of up to 10,000# it is a Little Giant. Caterpillar or Corner Drives available. Vertical turns as small as 2' Radius. Horizontal turns as small as 9" Radius. Rotating hooks available for use in spray booths, ovens, etc. Conveyor speeds from 3-I.P.M. to 80 F.P.M. available.

Write for Bulletin No. 947

**BEVERIDGE MILLWRIGHT SERVICE, INC.**  
7376 Grand River Ave. Detroit 4, Mich.

## TOTES MORE PAYLOAD at LESS COST . . .



**LIGHT WEIGHT**—Convoy Nesting Tote Box—weighs 50% to 60% less than steel . . . 2 cu. ft. size weighs only 7.2 lbs.

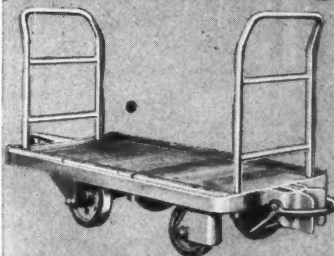
**STRONG, DURABLE**—Convoy Tote Boxes are made of chemically hardened corrugated board by an exclusive impregnation process . . . generally will support anything they will contain. Many of them have been in active daily use for more than two years. Armored rim for rigidity . . . strong, comfortable handholes.

**LOW COST**—Convoy Nesting Tote Box costs 50% to 60% less than steel . . . so inexpensive that they can be discarded when they finally become unserviceable.

More than 12 stock sizes of nesting boxes available now . . . write for details.

**CONVOY, INC.** CANTON 7, OHIO

## EWC TRAILERS Cut Handling Costs!



Specially designed to move material more efficiently. EWC Trailers are available in standard or special models for every hauling range . . . and in any capacity desired. Send for complete information.

**MODEL 1002** Trailer. Capacity 4000 lbs. For freight terminals, warehouses, and docks . . . extensively used where need is for combination of hand use and power-drawn trains.



**MODEL WP-4** Cap. 4-5 Tons. For general industrial service . . . trails accurately in trains. Solid or pneumatic tires.

**MODEL W3.** Cap. 3 tons. For industrial plants of all kinds . . . excellent for inter-plant service. Standard 8th wheel type. Solid or pneumatic tires.



**ELECTRIC WHEEL CO., Quincy, Illinois, Est. 1890**

## Detroit AIR HOISTS

Quick Deliveries  
Can Be Made . . .



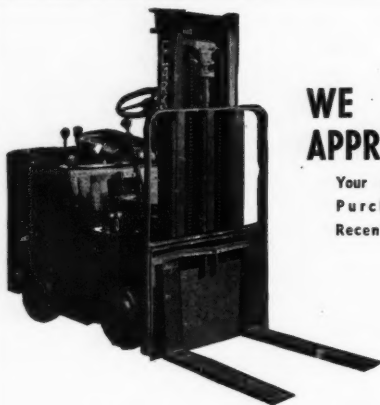
Hook Suspended,  
Single Cable Air  
Hoist

Two-Cable, Mon-  
orail Trolley Type  
Air Hoist

They are recommended for paint, chemical, pickling processes; for potentially explosive and other hazardous conditions; also for a wide variety of normal applications.

Consult us on the uses and applications for Detroit, Geared Type, Pneumatic Hoists. Ask for Bulletin 700.

**DETROIT HOIST & MACHINE CO.**  
8216 MORROW ST. DETROIT 11, MICH.



## WE APPRECIATE

Your Attendance and  
Purchases at Our  
Recent Auction Sale

As Stated at the Time of the Auction We  
Are NOT Going Out of Business. Let Us  
Have Your Inquiries for All Kinds and  
Sizes of Material Handling Equipment.

CRANES, BULLDOZERS, BULLCLAMS, SCOOPS,  
TOURNAPULLS, AUTO PATROLS, COMPRESSORS  
AND ALL TYPES OF LIFT TRUCKS **FOR RENT,**  
WITH OR WITHOUT OPERATORS

### HARRY M. RICHTER, Inc.

Phone ATLantic 1631 Cleveland, O. 7:30 a. m. to 4:00 p. m.  
Foot of W. 45th St.—Former American Shipbuilding Yard—First turn toward  
lake west of High Level Bridge off Bulkley Blvd. 5 minutes from Square.  
OWNED, OPERATED AND MANNED BY VETERANS OF WORLD WAR II

## ON THE PALLET . . .

(Continued from page 35)

Mr. Clarke's assistant for a number of years and who is well known in the trade, has been appointed to fill the vacancy created by Clarke's death.

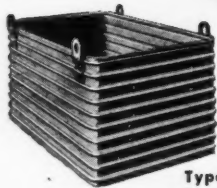
**T**HE largest expansion in the history of U. S. Electrical Motors, Inc., is taking shape in Milford, Connecticut, where the company's Atlantic plant is now being more than doubled in size. The original plant was constructed in 1939 and was expected to be adequate for at least two decades. The continued large postwar demand for various types of electrical equipment has necessitated this extensive expansion.

**S**OME good eggs are just not getting the "breaks" any more!

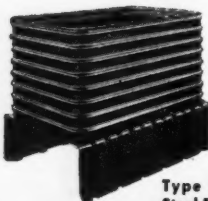
The reason—shipments of eggs from midwest points to New York City are being transported in refrigerator cars equipped with hydraulic shock absorbers in a series of test runs by the Monroe Auto Equipment Company, Monroe, Michigan.

Recently, in a test run, a Monroe shock absorber-equipped car loaded with 17,520 dozen eggs arrived in New York, and not a single egg damage claim was filed. The comparison car on the same train, with standard equipment and loaded with 19,200 dozen eggs, revealed damage to 713 dozen!

## HEADQUARTERS FOR MATERIALS HANDLING EQUIPMENT



Type B-80C Truscon  
Box Equipped for  
Crane Handling.

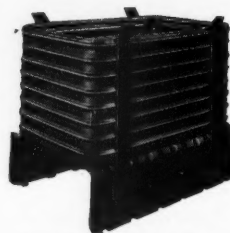


Type PB-120 Truscon  
Steel Box and Platform.

**T**HE SUCCESS of modern production methods depends upon the efficiency with which materials and products in various stages of fabrication can be handled.

Truscon's Pressed Steel Division—nationally known for the quality of its products and the dependability of its service—is fully equipped and prepared to handle your material handling equipment requirements. The Pressed Steel Division's central location, moreover, assures efficient service for all your needs.

## TRUSCON MATERIALS HANDLING EQUIPMENT



Type PB-120L Truscon Box  
and Platform with full  
length lifting lugs.

Write for free  
catalog describing  
the complete line of  
Truscon Steel  
Boxes and  
Steel Skids.

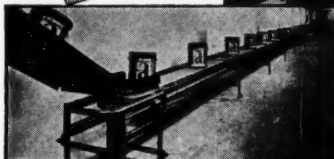


TRUSCON STEEL COMPANY • Pressed Steel Div., 6202 Truscon Ave., Cleveland 4, O., Subsidiary of Republic Steel Corp.

## THIS BOOK HELPS YOU SOLVE HANDLING PROBLEMS



**THIS WAY!** Fully describes Gravity Rollers, ranging in size from 3/4" dia. to 5 9/16" dia. in straight sections, "V" sections, switch sections and hinged sections—standard and special lengths.



**THIS WAY!** For handling various types of packages and bulk materials, Roller Bed and Slider Bed Belt Conveyors are offered in numerous designs to solve individual problems.

**THIS WAY!** A combination Belt and Gravity Roller Conveyor. Constant and adjustable pressure are two major types offered in standard designs. Write for complete catalog.

The Alvey-Ferguson Co.  
433 Disney Street  
Cincinnati 9, Ohio



## KRANE KAR HANDLES MATERIALS FASTER—INCREASES PROFITS



**KRANE KAR** speeds materials-handling and increases productivity. **KRANE KAR** quickly pays for itself, gives years and years of efficient service. Gasoline or Diesel; pneumatic or solid rubber tires; 9 to 37 ft. booms or adjustable telescopic booms; 1½, 2½, 5 and 10 ton capacities. One man operates both Travel and Crane controls.



**KRANE KAR** picks up, carries, swings, and places loads of any shape or size up to 10 tons. Loads and Unloads freight cars, trucks,

barges...Tiers, Stacks, and Stores materials inside the plant or in the yard...speeds plant Maintenance and Repairs. Ask for our new Bulletin No. 69.

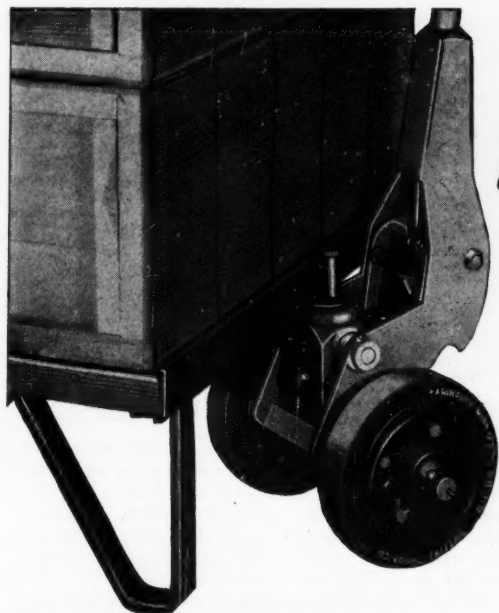
USERS: U. S. Steel, Ford, Chrysler, General Motors, Monsanto Chemical, Bethlehem Steel, DuPont, Westinghouse, General Electric, Todd Shipyards, etc.



THE ORIGINAL SWING BOOM MOBILE CRANE  
WITH FRONT-WHEEL DRIVE AND REAR-WHEEL STEER  
1½, 2½, 5, AND 10 TON CAPACITIES

**KRANE KAR**

SILENT HOIST & CRANE CO., 888 63rd ST., BKLYN 20, N.Y.



### FOR FLEXIBLE LOW COST MATERIALS HANDLING

Only the Nutting Jack is operated by gravity and leverage—no springs to break!—no danger of your jack-skid system suddenly bogging down. The Nutting Jack is unique in its simple, rugged construction, and has many other advantages: complete control of load at all times, easy swiveling under full load, extreme range of tongue positions for short turns, extra high lift for steep ramps or high thresholds without striking skid legs.

Nutting Live Skids are sturdily built to Nutting standards of quality. They take the grief year after year! A large range of standard platform sizes, with superstructures available if desired. The Nutting Jack-Skid System is outstanding—investigate!—compare!

Nutting Makes Everything in FLOOR TRUCKS, WHEELS, CASTERS. Look in your classified phone directory for your nearest Nutting representative, or write for Bulletin 48-G direct to

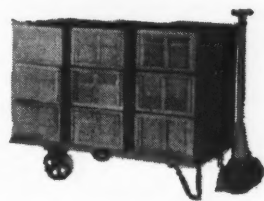


FIG. 421, Standard Industrial Skid, 9 platform sizes from 24" x 48" to 42" x 72." Capacity 1800 lbs. Metal or Rubber Tired Wheels.

THE ONLY MECHANICAL JACK  
WITH NO SPRINGS



**NUTTING TRUCK  
and CASTER COMPANY**

1602 DIVISION STREET, FARIBAULT, MINNESOTA



FIG. 420, Heavy Duty Industrial Skid, 9 platform sizes as above. Welded angle steel frame. Capacity 2800 lbs. Metal or Rubber Tired Wheels.

# CESCO

## DUMPER

**LIFTS and DUMPS UP TO 50,000 LBS. IN ONE HOUR**

You can lift and dump up to 100 trips an hour with 500 lb. loads with the new Cesco Dumper. Dump material from bags, boxes or barrels in open front skip—loose materials or liquids in box type skip. Choice of dumping heights. Write for catalog.



**COLSON EQUIPMENT & SUPPLY CO.**

1317 WILLOW STREET

LOS ANGELES 13, CALIFORNIA

**YOU SHOULD SEE**

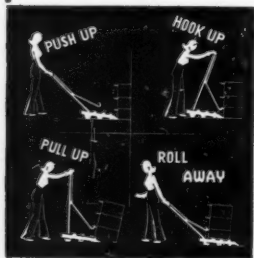
# "George"

**WHEN HE'S GOT A LOAD ON!**

He's the almost automatic tote box truck . . . built to save time and energy in loading and hauling backstrain boxes around your plant. Hook operated from handle-bar engages box handle; drawback of handle glides load onto upper rollers; lower rollers carry truck to destination . . . safely, quickly, with little effort.

Strong, low cost. You can use several!

Send for Bulletin F.

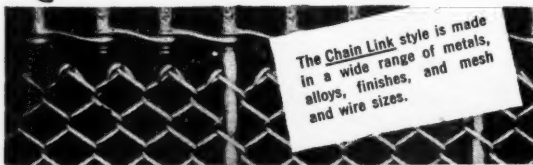


**ROLOCK INCORPORATED**  
FAIRFIELD, CONNECTICUT

5RG48

## Cyclone Metal Conveyor Belts

...tailored to fit your plant



The Chain Link style is made in a wide range of metals, alloys, finishes, and mesh and wire sizes.



The Flat Wire belt is made in three mesh sizes in stainless steel, galvanized and plain uncoated wire. Flex-Grid is also available.

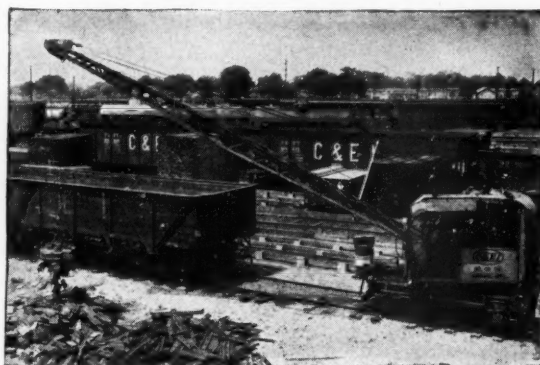
Cyclone engineers will gladly help you plan an efficient conveyor belt system to fit your particular operating conditions.

FREE Catalog No. 4

By the makers of Cyclone Fence  
**CYCLONE FENCE DIVISION**  
(American Steel & Wire Company)  
Dept. A-48, Waukegan, Illinois  
United States Steel Export Co., New York



**UNITED STATES STEEL**



### HANDLE SCRAP FASTER—EASIER

This Burro is handling scrap faster and easier because it moved itself and several cars to the job quickly—and started work without delay. Burros equipped with magnet, clamshell bucket, dragline bucket, tongs or hook are saving time and money on many jobs in every type of industry. Their powerful draw bar pull (7500 lbs.) and fast travel speeds (up to 22 MPH) make them efficient switch engines too—you can spot cars where and when you want them at a moment's notice. There's no waiting time when a Burro is on your track. CULLEN-FRIESTEDT, 1320 S. Kilbourn Ave., Chicago 23, Illinois.

Write for Descriptive Bulletin

**CULLEN-FRIESTEDT CO., CHICAGO 23, ILL.**

1320 South Kilbourn Avenue

Chicago, Illinois

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# CUT YOUR COSTS

# up to 30%



Lamson Conveyors in Action  
Westinghouse Electric Corp.  
Sunbury, Pa.

## LAMSON CONVEYORS

**SAVE** wasted effort... handling time... and floor space.

**SPEED** flow of materials for greater production.

• It's a fact. Materials-handling costs actually eat up to 30% of your manufacturing dollar. And — there's nothing to show for it in your finished product.

• That — for management — is a tough headache.

• But this is also an incontrovertible fact. Lamson Conveyors have drastically cut materials-handling costs in thousands of plants. (The Westinghouse Plant above is only one.) They can do the same for you.

### For Greater Savings— LAMSON Pneumatic Tubes

• Coordinate flow of papers with the flow of materials on Lamson Conveyors. Save costly messenger service... speed flow of mail, telegrams, requisitions, small tools, samples, and blueprints.

**In One Plant Alone  
LAMSON TUBES Saved  
\$150,000 in one year**

MAIL THIS  
COUPON  
TODAY!

FREE BOOKLET

### LAMSON CORPORATION

160 Lamson Street, Syracuse, New York

Please send me further free information on:

☐ Conveyors ☐ Pneumatic Tubes

Company.....

Address.....

City..... Zone..... State.....

My Name.....

# Materials HANDLING EQUIPMENT

## Metal Bound SKIDS and PLATFORMS



Item S-519

### WOOD NESTING RINGS ON WOOD SKIDS OR PLATFORM

Corner stacking lugs of nesting rings lock into position on platform and also nestle on each other, rings obtainable in any dimensions, ideal for handling parts to be machined; add as many rings as size of load demands; lift rings off as contents are removed.

For quotation give dimensions of rings, type of skid construction, and quantity of each wanted.

## Quick Delivery

**One to Two Weeks**

**When Ordering** give item number to prevent error. All prices f.o.b. Detroit—subject to change without notice.



Inverted end angle.



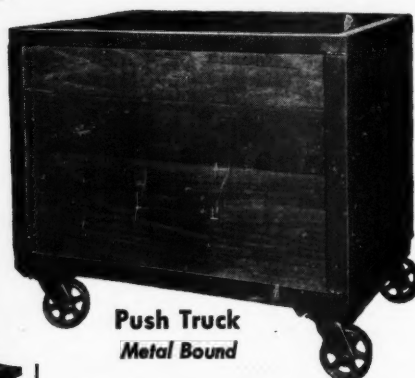
One piece binding angle. Heavy angle welded legs.



Without end binding angle.

**Item S-784 Standard Platform**  
Hardwood, metal armored, built to customers' specifications.

## Metal Bound BOX TRUCKS



**Push Truck**  
*Metal Bound*

May be used as a push truck or with lift truck. Built of all hardwood, completely metal bound, all welded construction, no bolts used. Four sturdy, 5" swivel casters.

### TWO STANDARD SIZES

**Item NS-418A \$3965**

Measures 24" wide, 36" long, 26" high overall. Weight 185 lbs.

**Item NS-418B \$4505**

Measures 28" wide, 48" long, 30" high overall. Weight 260 lbs.

### Wood Box Metal Bound



This box has four-way lift truck entrance (side or ends). When ordering be sure to give underneath clearance required for your lift truck.

### TWO STANDARD SIZES

**Item NS-249A** is 34" wide, 42" long, 20" deep overall box size. Add leg length for total height. Wt. 225 lbs.

**\$3260**

**Item NS-249B** is 34" wide, 48" long, 24" deep overall box size. Add leg length for total height. Wt. 300 lbs.

**\$3605**



**Wood Box**  
*Tilt Type, Metal Bound*

A general utility push truck, "Tilt-Type" for easy wheeling and short turning of corners. Two rigid and two swivel, 5" metal casters, 1/2" tilt.

### TWO STANDARD SIZES

**Item PS-91A** measures 24" wide, 36" long, 26" high overall, Weight 185 lbs.

**\$3965**

**Item PS-91B** measures 28" wide, 48" long, 30" high overall, weight 260 lbs.

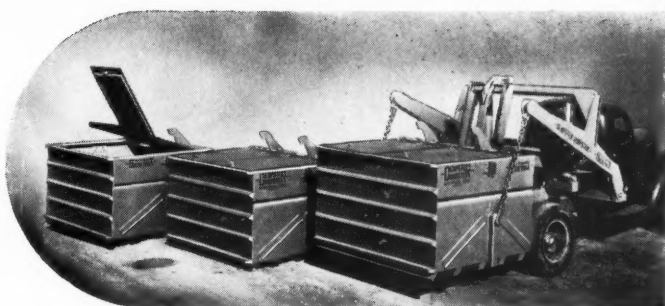
**\$4505**

DESIGNED AND MANUFACTURED BY

# Palmer Shile Co.

16012 Fullerton Avenue, DETROIT 27, MICHIGAN

# ONE TRUCK, 20 BODIES, 6 CUBIC YARDS EACH



## Another Dempster

### Development For Industrial Materials Handling

★ Another typical example of how the Dempster-Dumpster is saving time, manpower, trucks, tires, and gas in leading industrial plants of almost every classification.

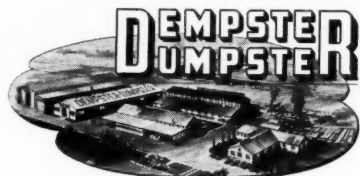
In this case, twenty standard Dempster-Dumpster drop-bottom bodies of 6 cu. yd. capacity each, equipped with special twin, self-balancing, spring hinged lids, are spotted throughout one of America's leading factories. A few are placed in convenient spots for re-

ceiving waste and rubbish. Others are placed at strategic points for recovering metal shavings. As each body is filled, forked truck conveys loaded body to convenient point where truck, equipped with the Dempster-Dumpster Hoisting unit, hoists load to carrying position, and dumps it at delivery point, all under full control from driver's seat. When empty body is returned, another loaded one, perhaps with a different type of material, is there for hauling and dumping . . . an uninterrupted cycle of materials handling using twenty bodies but with only one truck.

In dozens of other plants, various types of bodies are in use handling materials of almost every description from dust to liquid . . . light to heavy up to 7½ tons pay load . . . finished and un-

finished products . . . hot materials up to 1500 degrees F . . . and in every operation with one truck serving from 6 to 50 bodies.

The chances are that the advantages of the Dempster-Dumpster can and should be adapted to your plant. Let our engineers cooperate with you. Write for our complete catalog No. 247 now.



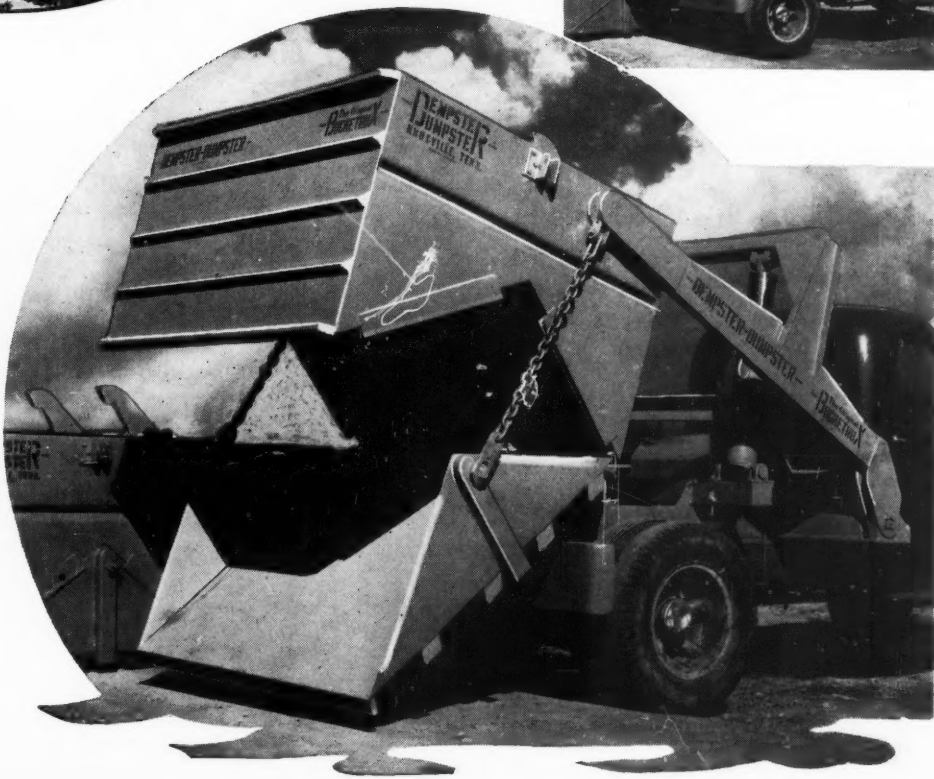
Illustrations on this page tell the operating story of the Dempster-Dumpster.

Top right shows a loaded body ready for hoisting. Shown also in this photo is the special twin, self-balancing, spring hinged tops on this particular body.

Center Photo shows loaded body in carrying position.

Bottom Photo illustrates instant, or controlled, dumping method of the Dempster-Dumpster bottom dumping type of body.

Types of bodies available are unlimited. Your requirements determine the design. Cooperation of our engineers with those of the customer has corrected hundreds of materials handling problems and at tremendous savings.



**DEMPSTER BROTHERS, INC.,**

**848 N. Knox,**

**Knoxville 17, Tenn., U. S. A.**

# C.B.P.

MEANS BUSINESS

**YOU CAN'T BEAT THE  
"C.B.P." PLAN FOR  
REACHING BUYERS**

In the case of FLOW, the C.B.P. Plan (Certified Buying Power) means 26,031 readers who are "known" buyers. These individuals are hand-picked from the customer-prospect lists of 46 selected material handling equipment jobbers located in key marketing areas. To its CCA guarantee of QUANTITY circulation, FLOW thus adds the C. B. P. QUALITY guarantee of authenticated, "known" reader-buyers. Here is the needed sales link for the advertiser.

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Each of FLOW'S 46 material handling equipment jobbers subscribes to the magazine for his active customers and prospects. He pays us \$1.20 a year for each subscription. This guarantees that each

FLOW reader is interested in the editorial contents of the magazine, and—equally important—is an active, authenticated buyer of material handling equipment . . . the jobber being the authenticating agent.

FLOW means business. Its 26,031 readers are YOUR potential buyers because they are also active, current customers of leading material handling equipment jobbers. Here is circulation representing the known national market for material handling equipment . . . a buying audience to whom you must tell your story.

"Certified Buying Power" is a powerful lever which you can use to raise your sales volume.

Other "C. B. P." magazines published by The Industrial Publishing Company are OCCUPATIONAL HAZARDS, for the industrial safety field, INDUSTRY and WELDING, for the welding field, and REFRIGERATION INDUSTRY, for the refrigeration and air conditioning field.

## *Flow* MAGAZINE

1240 ONTARIO STREET CLEVELAND 13, OHIO